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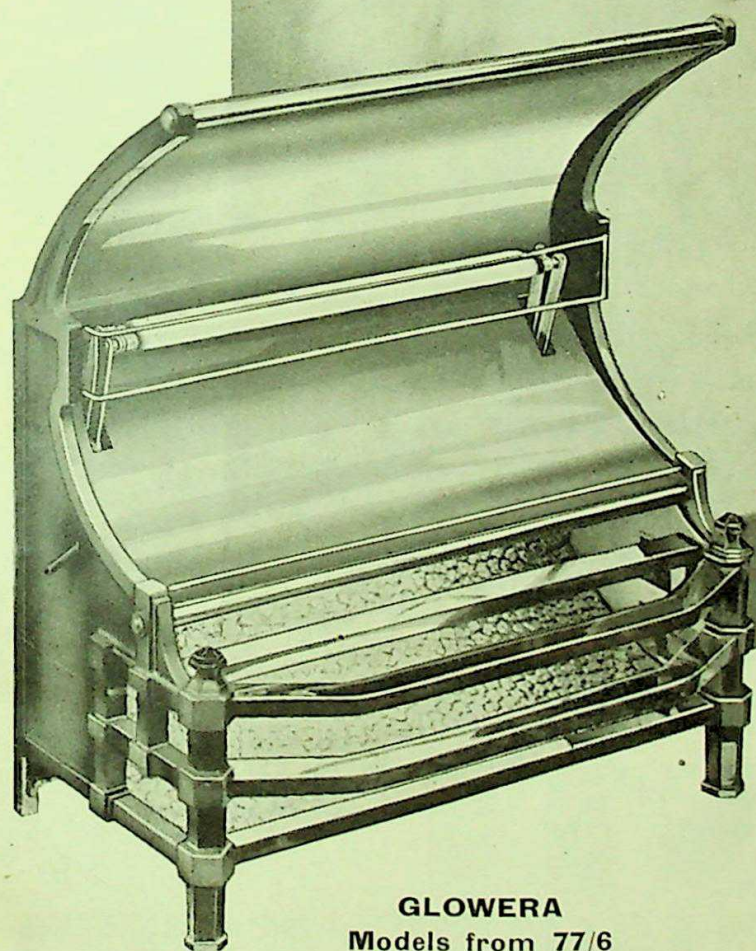
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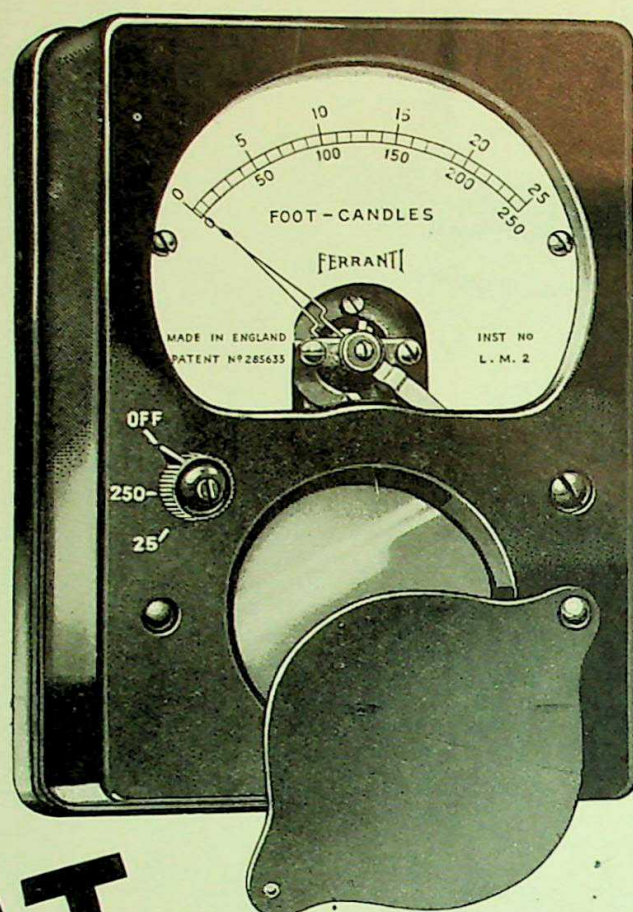
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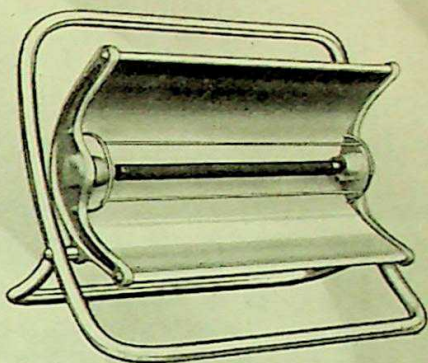
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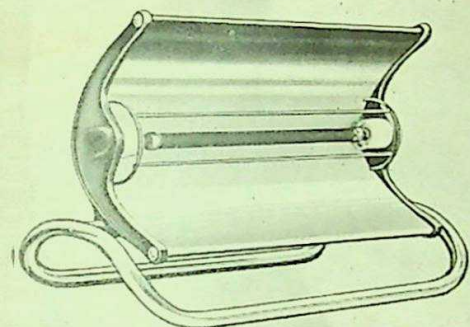
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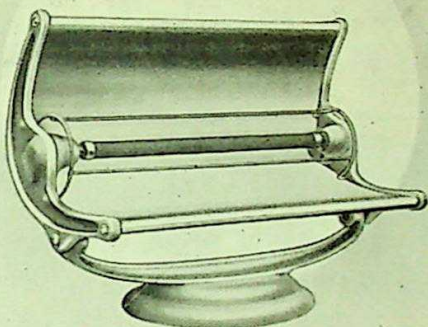
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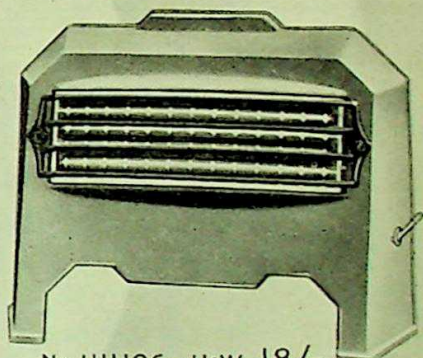
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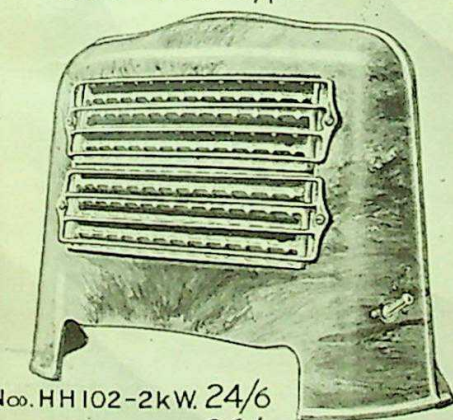
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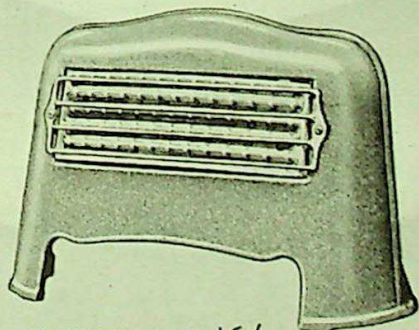
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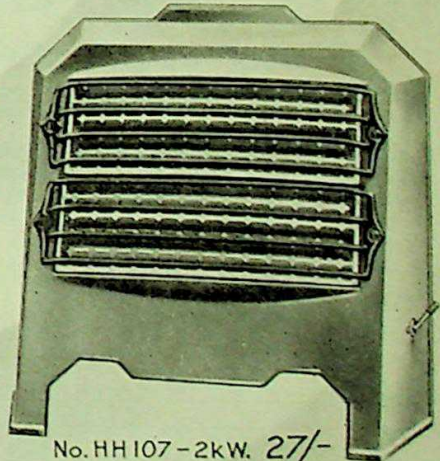
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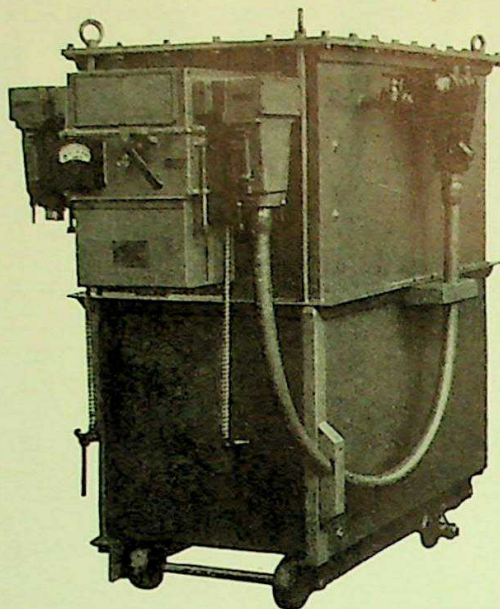
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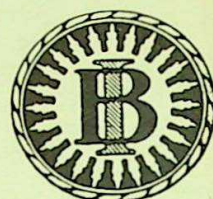
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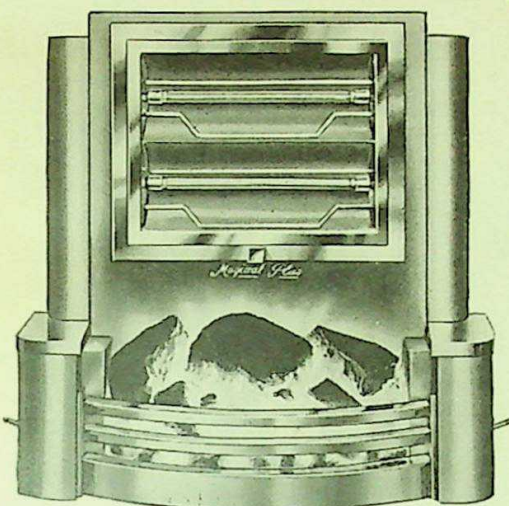
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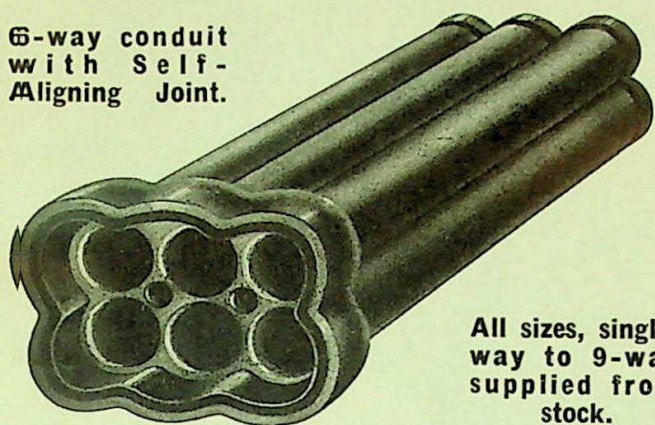
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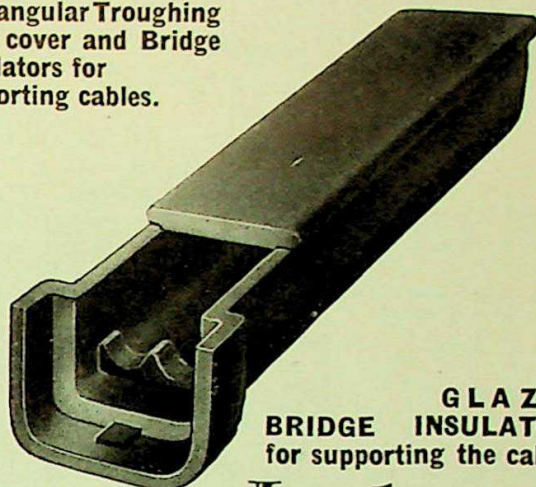
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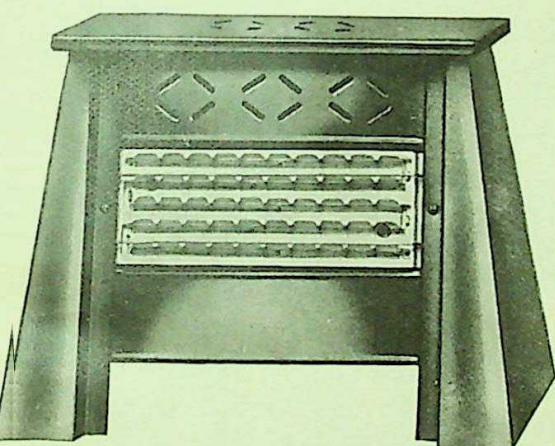
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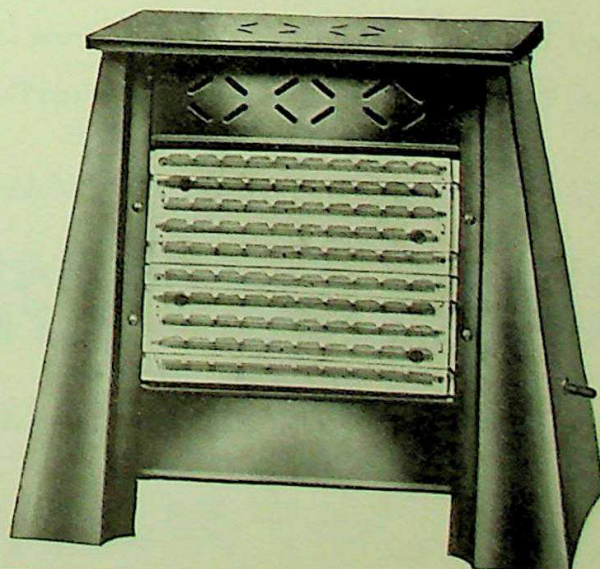
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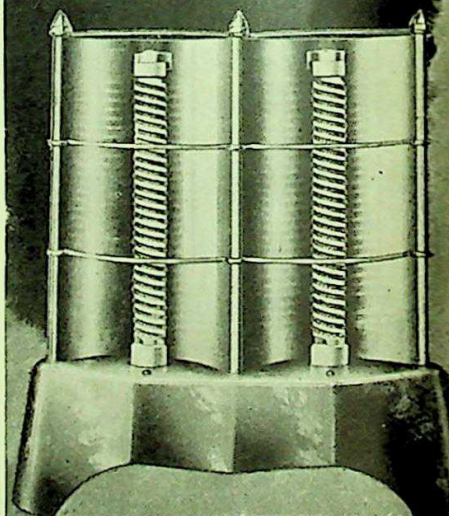
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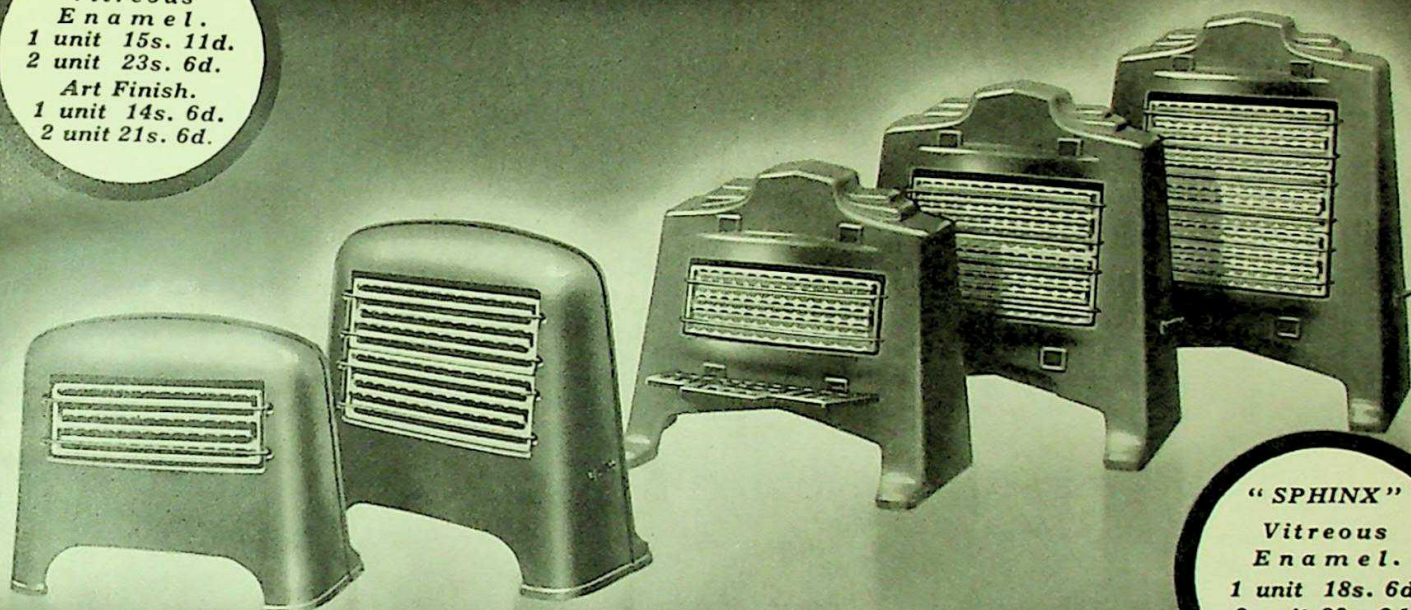
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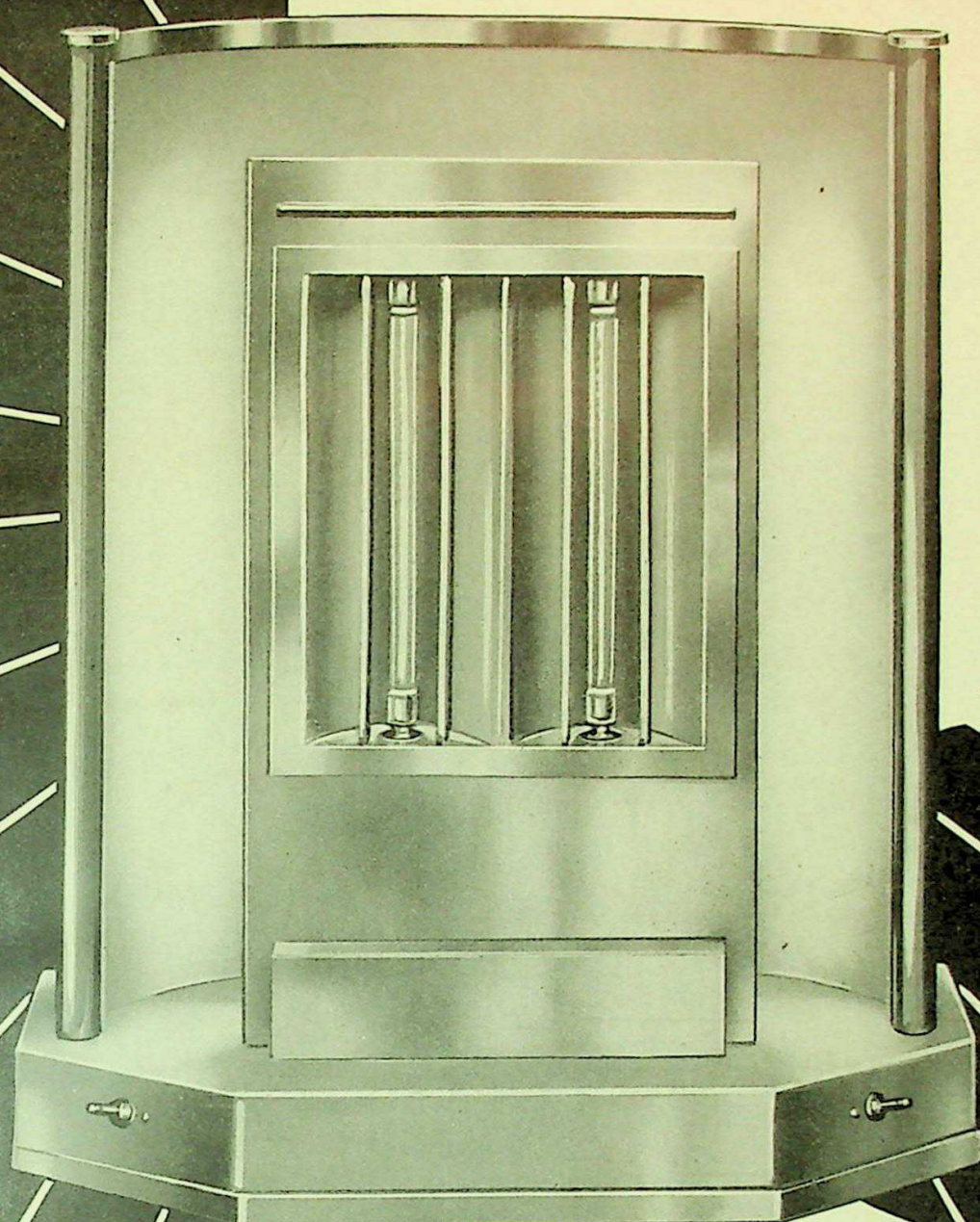
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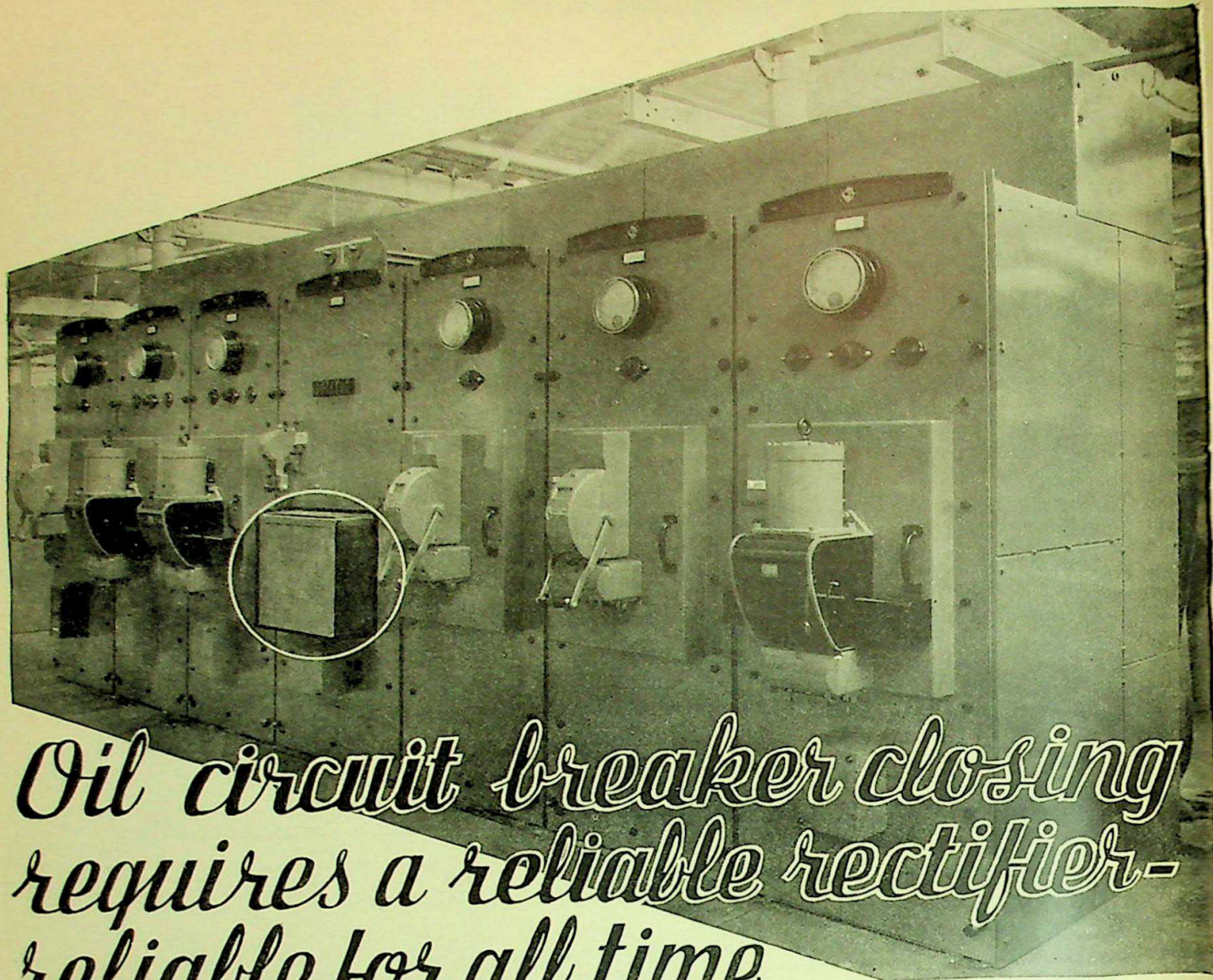
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Works: LONDON—Wembley.

BIRMINGHAM—Hall Green.

Branches: MANCHESTER—5, Deansgate. NEWCASTLE-ON-TYNE—22, Oxford St.

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Oil circuit breaker closing requires a reliable rectifier— reliable for all time

And there is NONE more reliable than the Westinghouse Metal Rectifier. It needs none of the attention and maintenance associated with alternative methods, and will give the same long service as the actual switchgear. Gone, too, are moving parts. The Westinghouse Metal Rectifier is static, it needs no foundations, and once installed its reliability makes its presence forgotten. May we send you full particulars? Write to Dept. E.R.

The photograph, which reproduced by courtesy of Messrs. Crompton Parkinson Ltd., shows a group of oil-circuit breakers, operated by one rectifier only.

YOU CAN DEPEND ON



METAL RECTIFIERS

THE WESTINGHOUSE BRAKE & SAXBY SIGNAL CO. LTD., 82, YORK ROAD, KING'S CROSS
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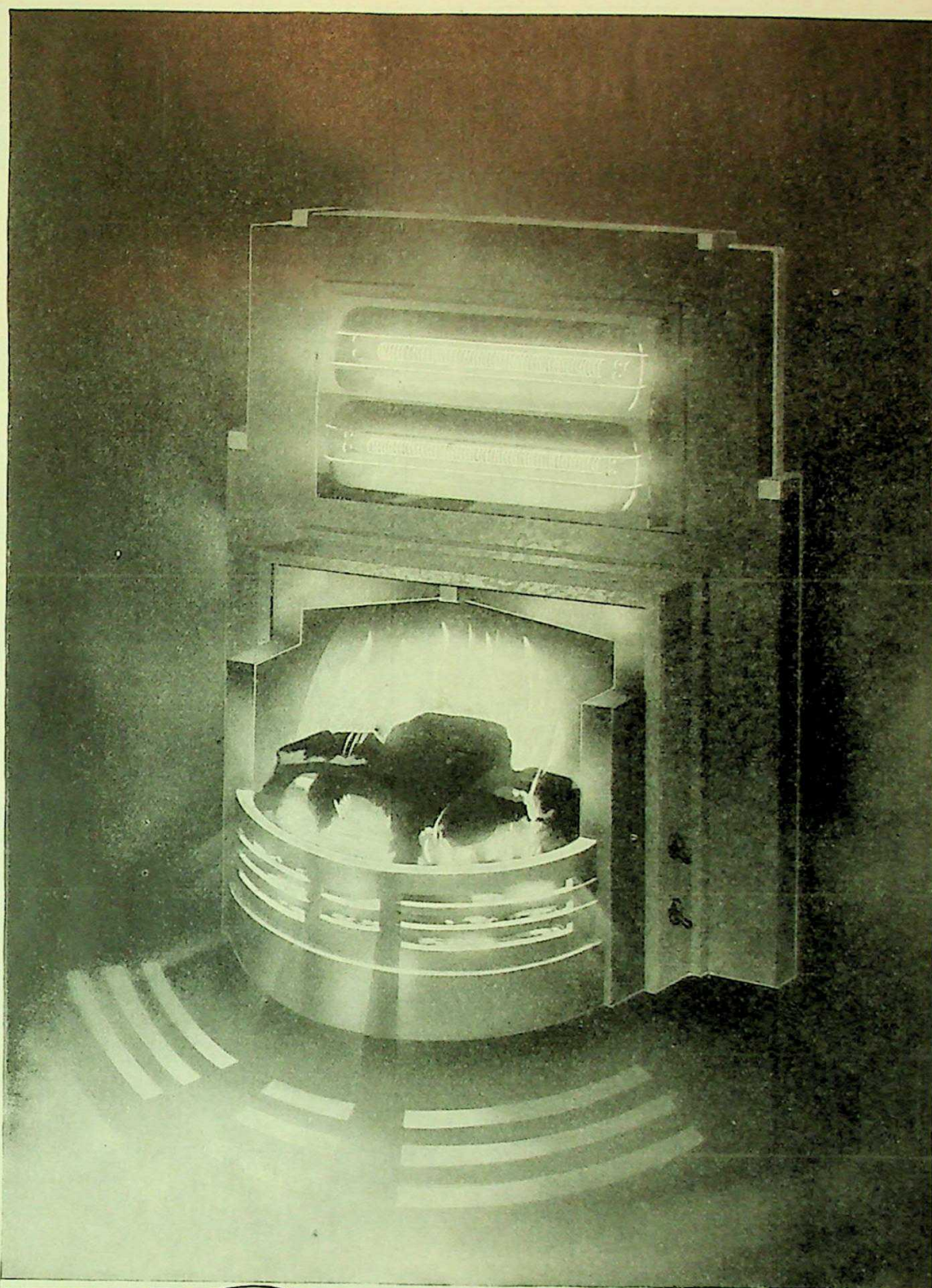
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The GRESHAM

You cannot easily wean a woman (or a man for that matter) from the fascination of a coal fire. That is the reason for the "GRESHAM'S" immense success, for to all intent it is a coal fire, a masterpiece in living coal and rising smoke and flame, so real that it will almost deceive YOU.

Then add the beauty of its design and charming finishes, the efficiency and convenience of the detachable heating bars (with positive contact), the gleaming chromium reflectors, formed with technical exactitude.

In short, the "GRESHAM" is a fire unlike any other imitation coal fire. If you have not already seen it, write for particulars.



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London Office: 203 Bush House (Centre Block), Aldwych, W.C.2.

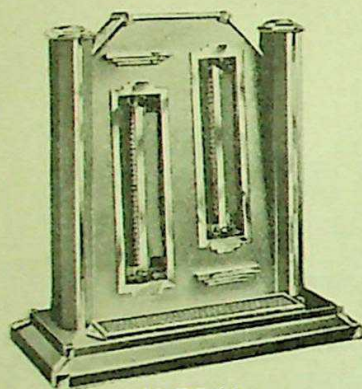
Telephone: Temple Bar 2903.

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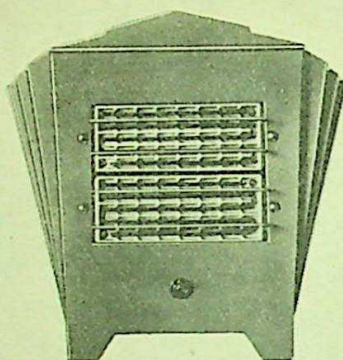
XCEL

ALL BRITISH

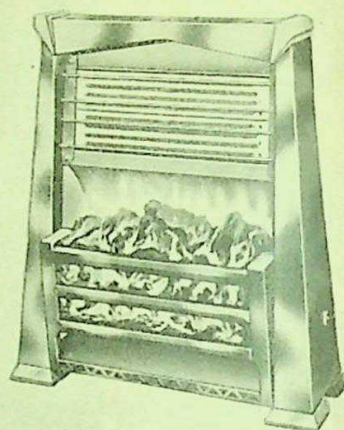
FIRE S



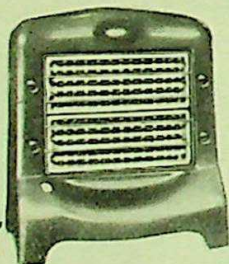
H 7361
FLOODLIT FIRE
(Patent applied for)
STRIKING EFFECT. A
UNIQUE COMBINATION
OF RADIANT HEAT & LIGHT



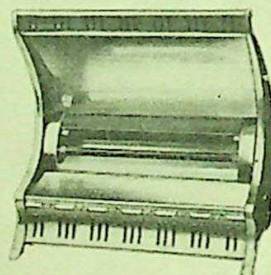
H 7342
THE 'MATLOCK'



H 7335
THE 'RAGLAN' COSYGLO
WITH MOVING FLAME AND
SMOKE EFFECT



H 7324 THE 'TUNBRIDGE'



H 7329 THE 'BUXTON'

THESE FIRES ARE OF THE SAME HIGH QUALITY
AS ALL **XCEL** ALL BRITISH ELECTRIC APPLIANCES

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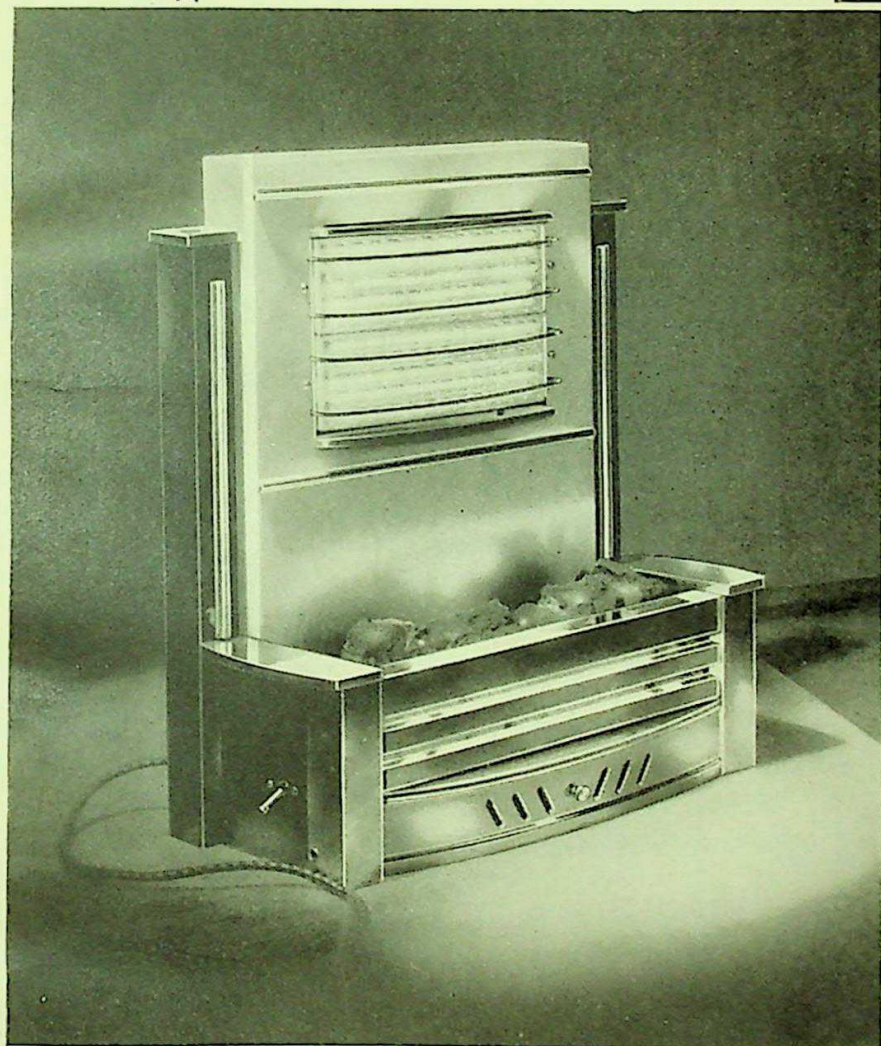


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Branches at: Belfast, Birmingham, Bristol, Cardiff, Dublin, Glasgow, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Nottingham, Sheffield, Southampton

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at the Price
SHE can afford!



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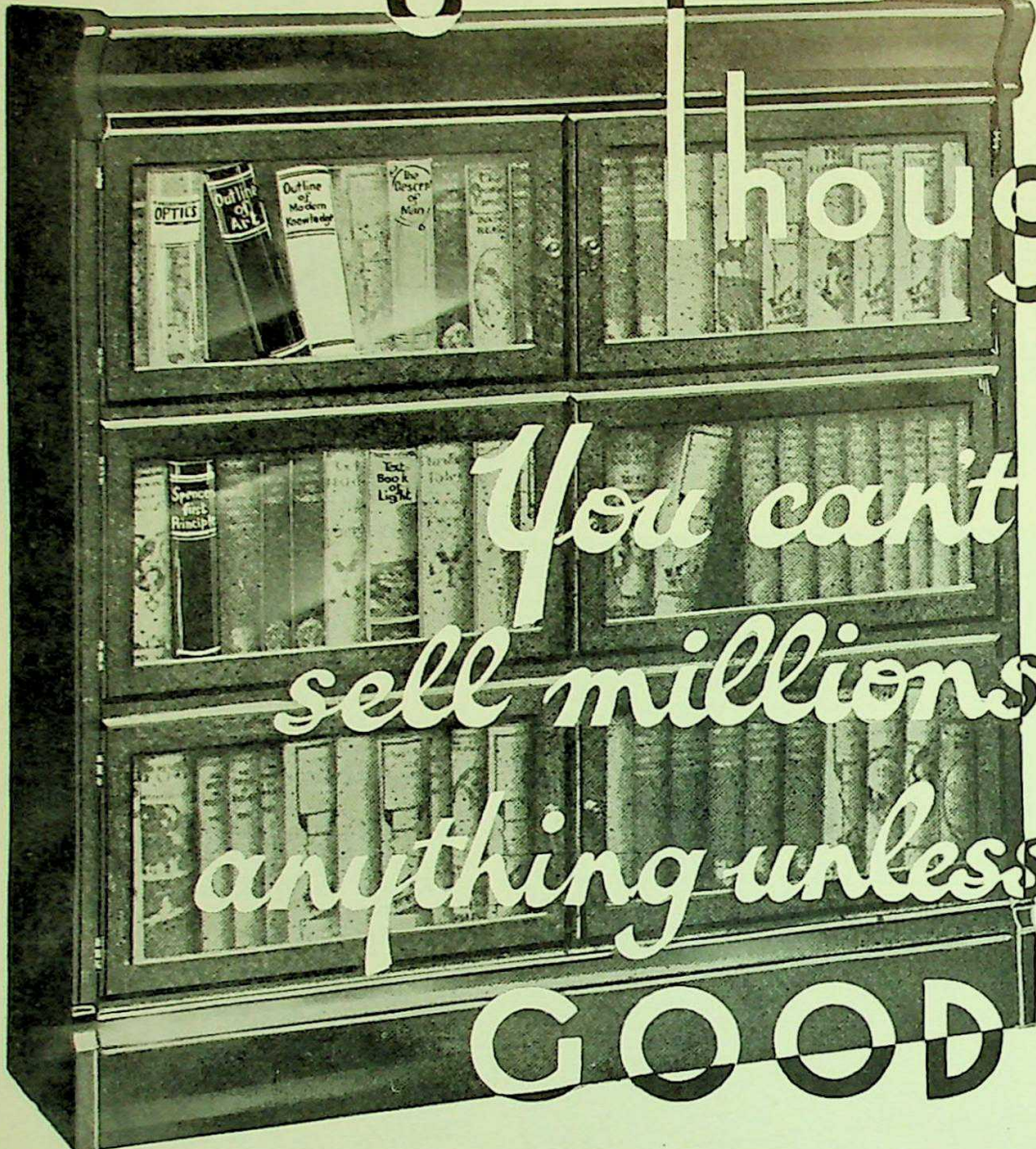
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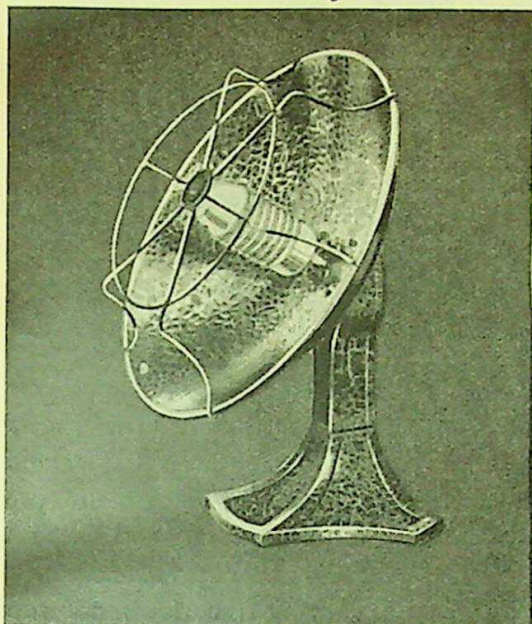
GRAMS: HOLOPHANE SOWEST LONDON

PHONE: VICTORIA 8062 (3 lines)

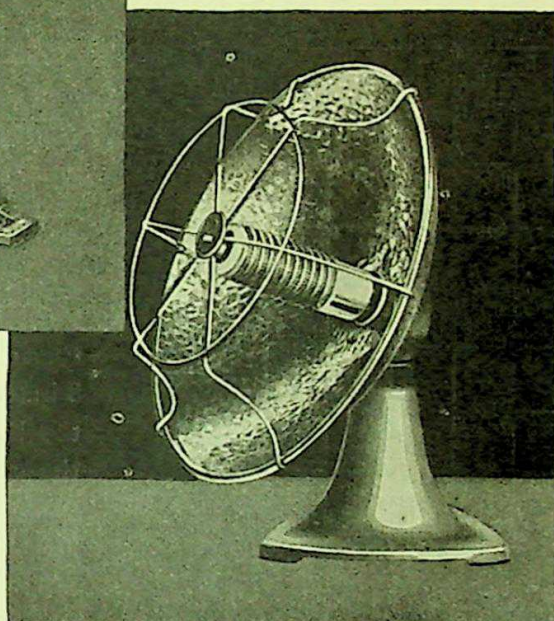
PREMIER

Fine Quality

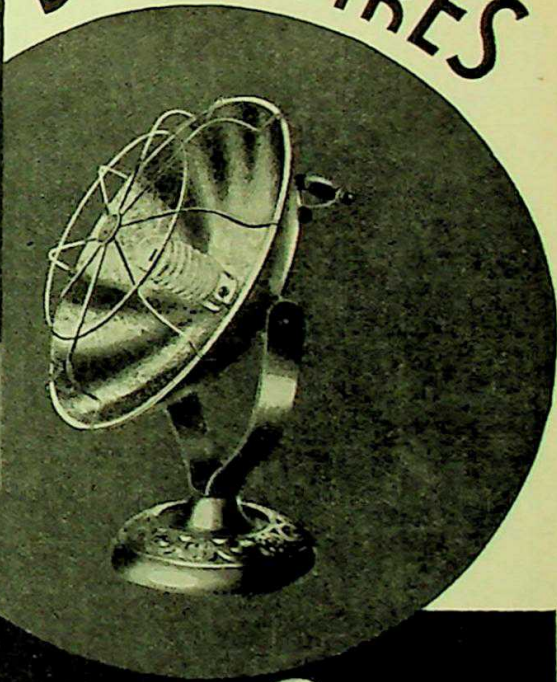
BOWL FIRES



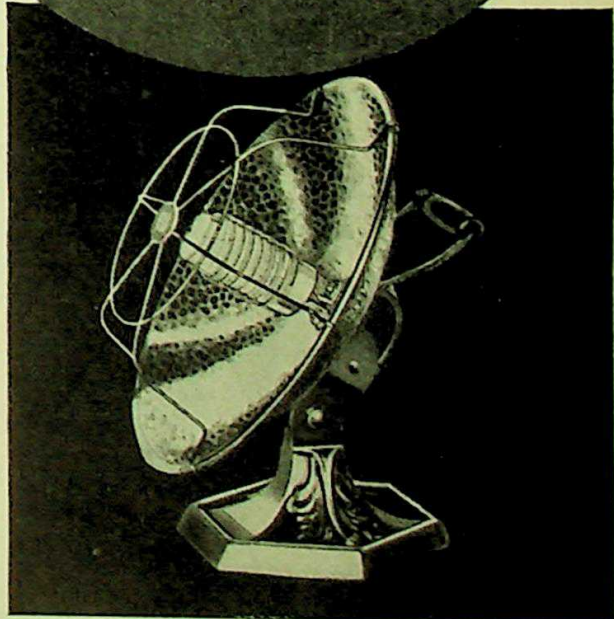
No. 1156. The "REFLEX"



No. 1157. The "REGAL"



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No. 1151. The "RENOWN"

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Premier Fine-Quality Bowl Fires have numerous features which stamp them as excellent, both in quality and value.

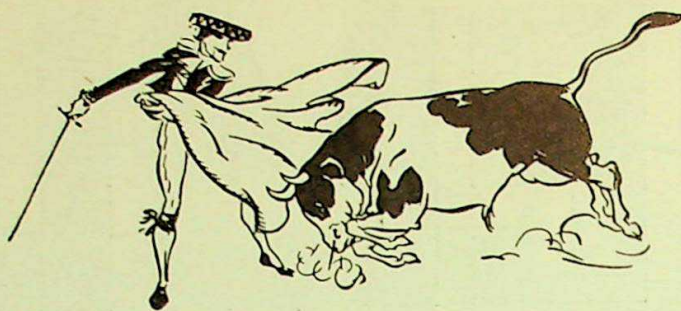
As distinct from the many cheap and "miniature" makes on the market, Premier Bowl Fires are of sound construction, with large figured solid copper reflectors, scientifically designed to ensure the most efficient distribution of radiant heat, and elements which will give long reliable service.

In short, they ARE fires, and they do HEAT, generously. Further, they are obtainable at prices to suit most purses.

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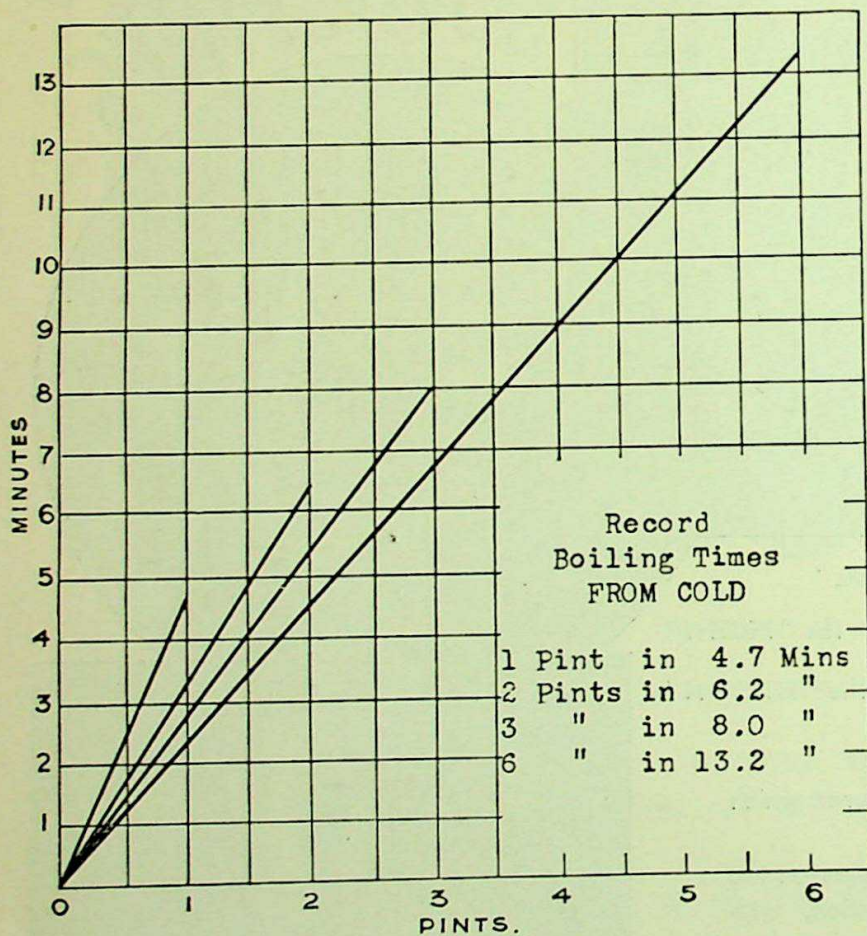
PREMIER ELECTRIC HEATERS LIMITED · BIRMINGHAM.9

PHONE: BIRMINGHAM VICTORIA 2104 (4 lines) 'GRAMS: FAHRENHEIT, BIRMINGHAM
London Office: 203 Bush House (Centre Block), Aldwych, W.C.2. Telephone: Temple Bar 2503.



SEEING RED!

It may be difficult for a woman to understand the solid hotplate because she cannot see red. But this is no reason for giving her psychological effect at the expense of essential cooking speed.

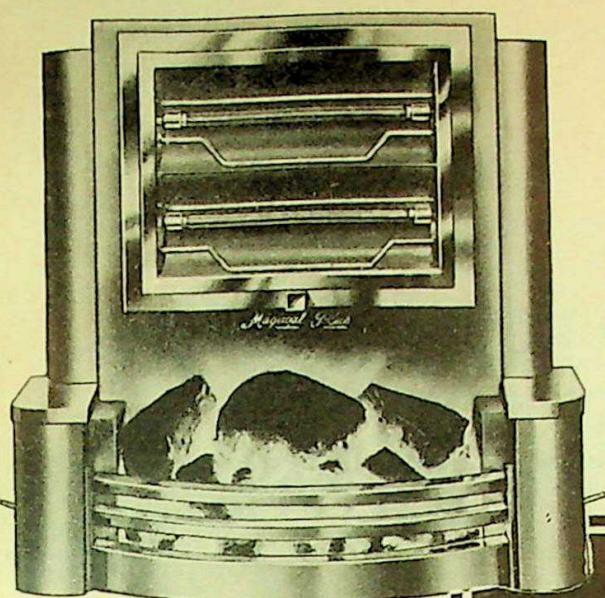


We have always contended that the solid type hotplate is the finest cooking medium. Latest developments prove this. The graph alongside shows the record boiling times obtainable with Pyramid utensils on the most recent type of solid hotplate (2250 watts loading 8 in. diameter). It should be noted that the heat is so evenly distributed over the entire surface of the plate that the maximum wire temperature is even lower than with the loading at 1,800 watts. Thus the solid type hotplate plus Pyramid utensils win again for real speed and ensuring real consumer satisfaction.

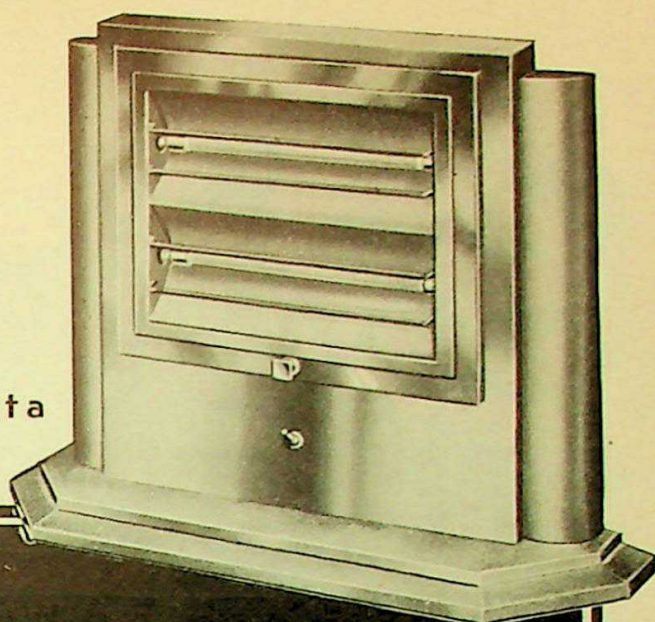
Write for copies of "The Joys of Perfect Cooking" and "Ah! Now I Understand."

PYRAMID
ALUMINIUM WARE
FOR ELECTRIC COOKERS

HAGUE & MCKENZIE LIMITED - PYRAMID WORKS - BIRMINGHAM



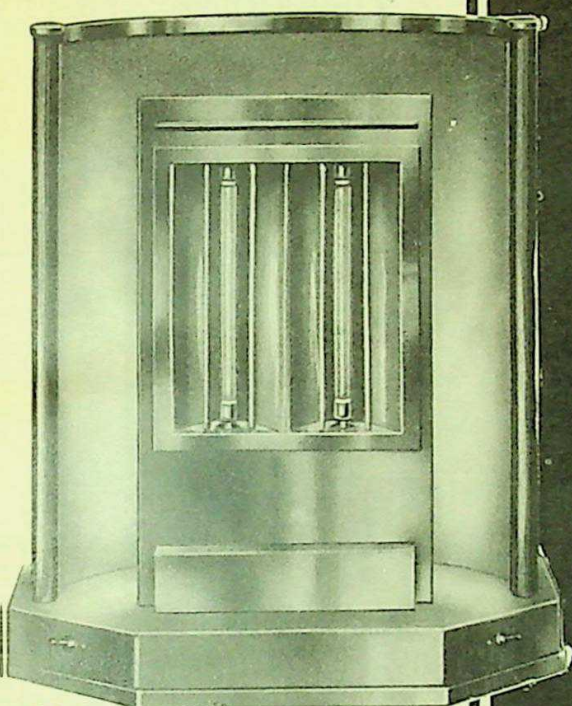
Dawnberry
MAGICOAL-"PLUS"



Rayflecta

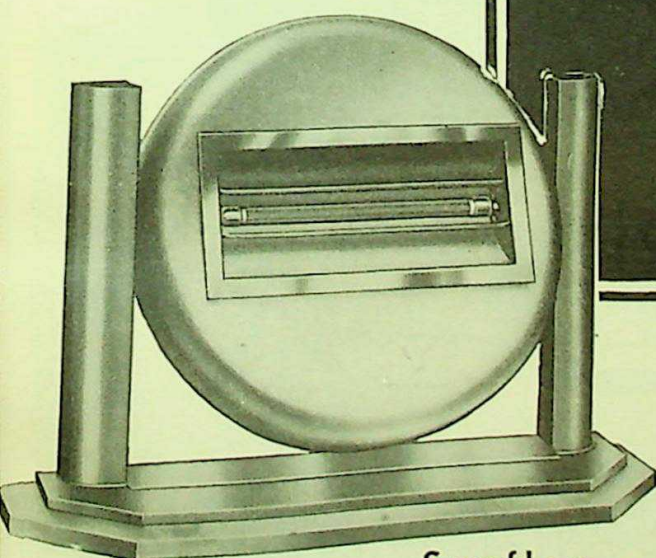


There is a
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for every room
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price within
the reach of
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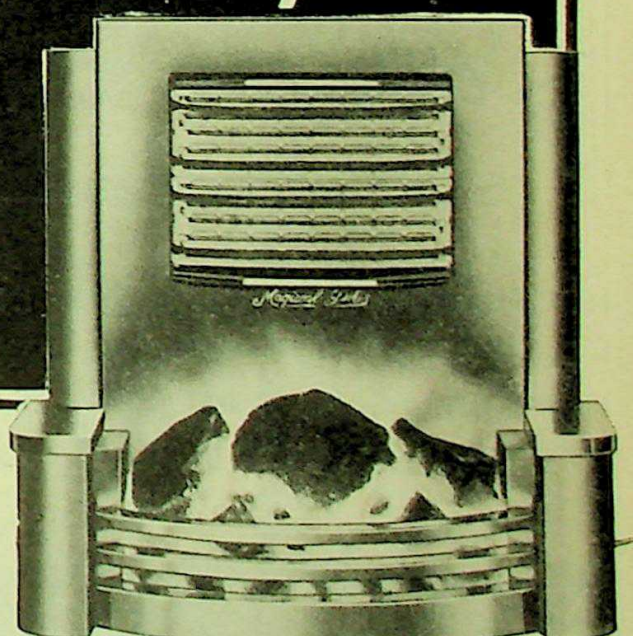


Patent
Pending.

Haloberry



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Regd. Designs

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Telephone: MUSEUM 6800 (9 lines).

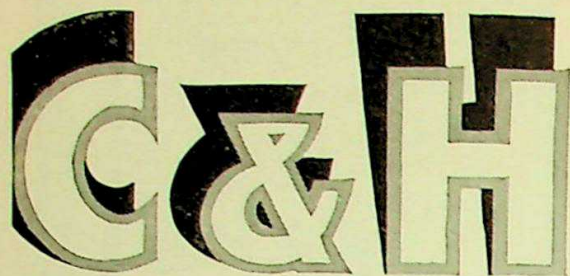
Works: LONDON—Wembley.

BIRMINGHAM—Hall Green.

Branches: MANCHESTER: 5, Deansgate.

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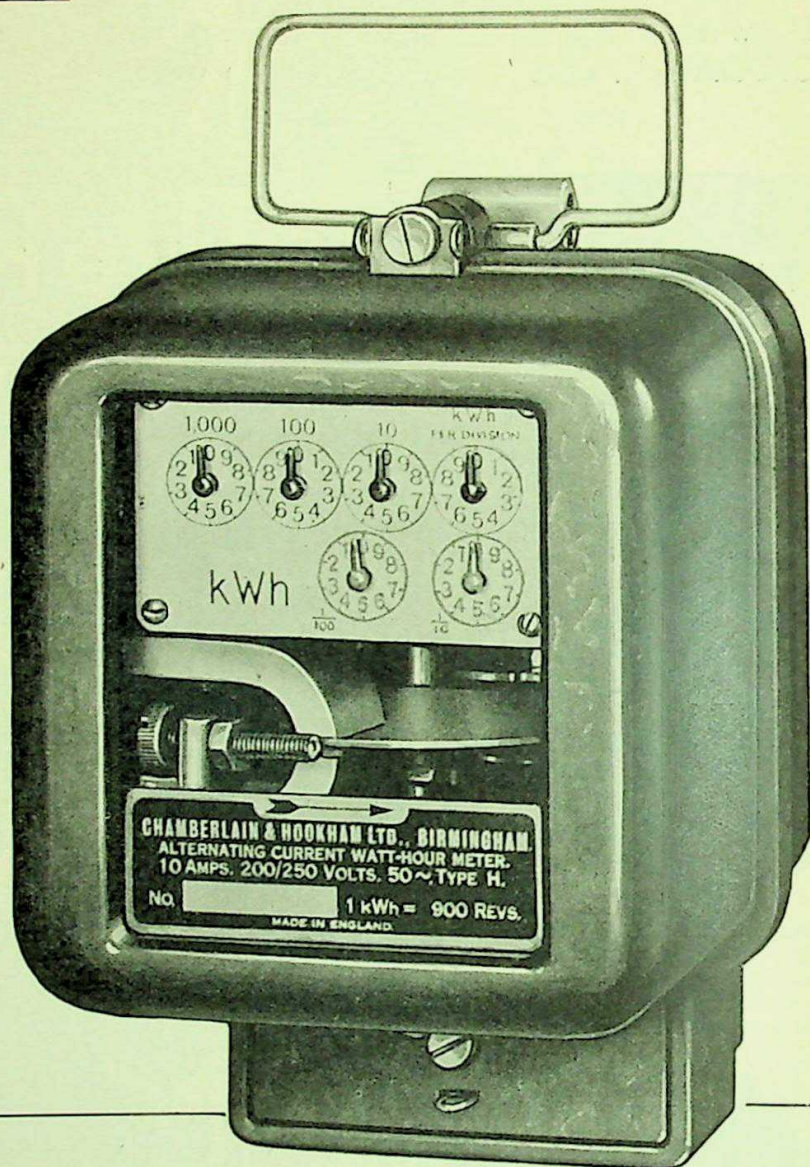
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SINGLE PHASE METER

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available
in
moulded
insulation
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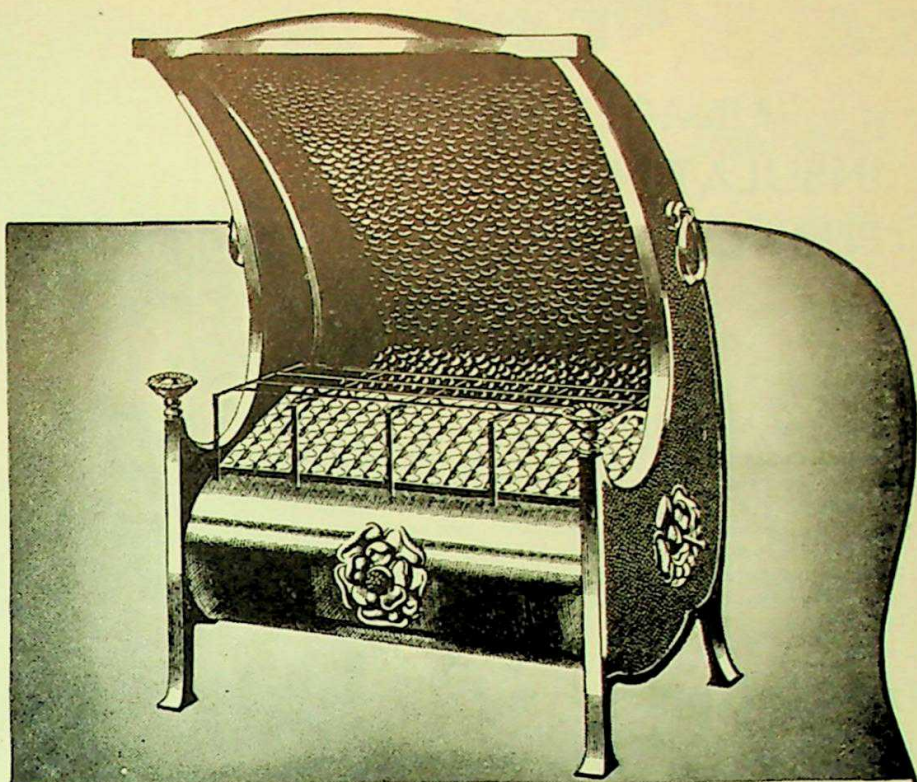
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NO THREADS MOULDED IN BAKELITE OR INSULATING MATERIAL
TERMINAL BRASSES REPLACEABLE
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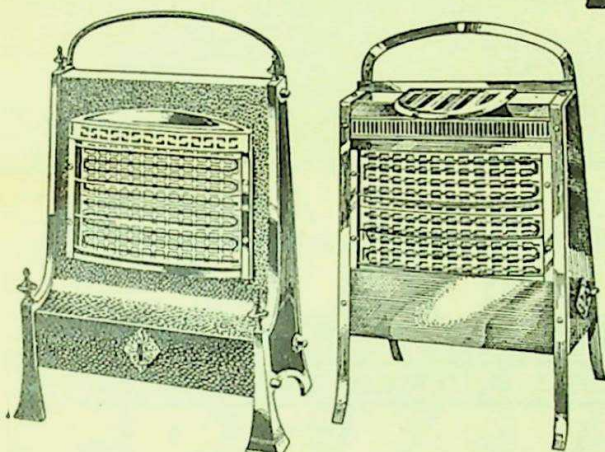
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Sell these Electric Fires and satisfy your customers



The "Lincoln"—a particularly beautiful Carron Portable—strongly made of oxydised copper with hand-hammered copper reflector.



The "Canterbury." Improved ventilation front and hot air convector. Width 15½ ins. Depth 8 ins. Height 22 ins. In Eggshell, Black Enamel with Polished Copper or Nickel-Plated fittings £2.10.0. Antique Brass or Electric-Bronzed, £3.10.0. Chromium-Plated or "Cromatt" Fabric finish, £4.2.6.

The "Exeter" Fire. Another type of popular Carron Portable—simply designed—unusually light—ideal for Bedrooms. Width 12½ ins. Depth 5 ins. Height 19½ ins. Ornamented Eggshell, Black Enamel, Art Silver or Copper. Retailing at £1.12.6. Electro-Bronzed. Retailing at £2.11.0.

THERE ARE three excellent reasons why, of all electric fires, those made at the famous Carron foundry will both enhance your own reputation and excel your customers' expectations. The Carron electric fires shown here are protected from all fear of 'shorting' by:—

- 1 Special 'non-sagging' elements which are fixed in such a way that they cannot meet and 'short.'
- 2 Element wires made of an unusually high-grade non-corrosive alloy which gives them an exceptionally long, trouble-free life.
- 3 A porcelain terminal block which eliminates all possibility of the flex perishing as the result of overheating.

Have you seen
the Carron
Electric Fire
Catalogue? It is
yours on request.

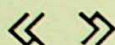


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CARRON COMPANY: Works, CARRON, FALKIRK



"ARMOUR" BRAND INSULATING VARNISHES ENAMELS AND PAINTS



213 "ARMACELL"

A dependable golden baking varnish, which CONFORMS IN EVERY RESPECT TO THE BRITISH STANDARDS SPECIFICATION No. 119—1930. Recommended for transformer coils, high tension work and general purposes. The high dielectric strength (1,075 volts per mil. at 90° C.) ensures an ample safety margin at working temperatures. Unaffected by hot oil. Highly resistant to moisture and petrol.

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Heat-Radiating Insulating Enamel

Reduces the temperature of the "hot point" of coils by 30% and eliminates danger of the insulation charring. By treatment with "Insulderm" the windings of coal cutter motors, traction motors, etc., may be prevented from rising to high temperatures. "Insulderm" penetrates the interstices of the cotton without appreciably increasing the diameter, thus producing an excellent, non-hygroscopic insulation wall all round the conductor.

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A finishing enamel with the hardness and smoothness of porcelain. Unequalled for switchgear and other electrical equipment on account of its brilliant glossy finish, its extreme hardness, its exceptional durability and its quickness in drying. "Vitros" Enamel retains its colour and gloss under the most stringent conditions.

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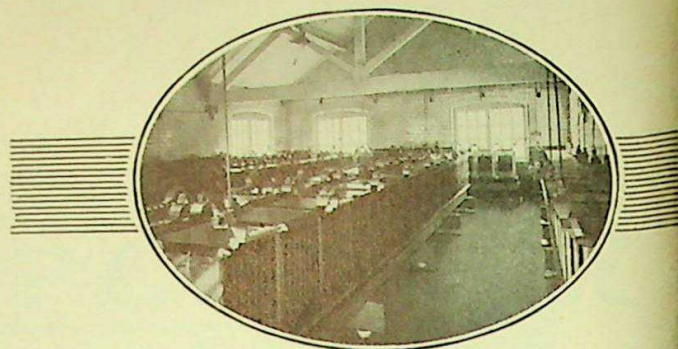
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THE BATTERY OF QUALITY

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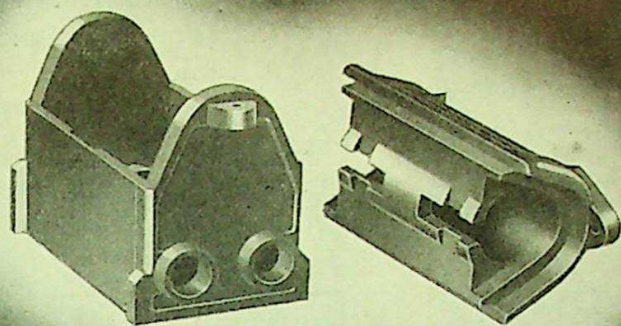
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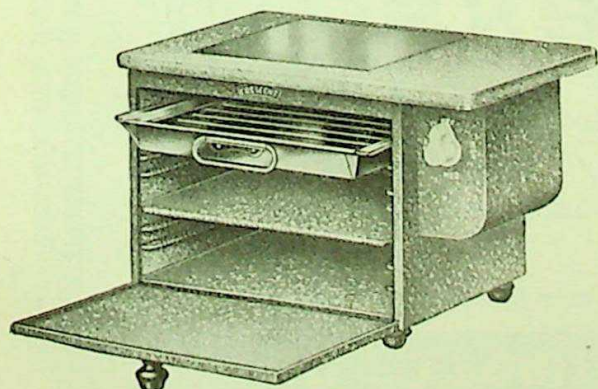
Telegrams:
'Crystalate, Finsquare
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CRESCENT

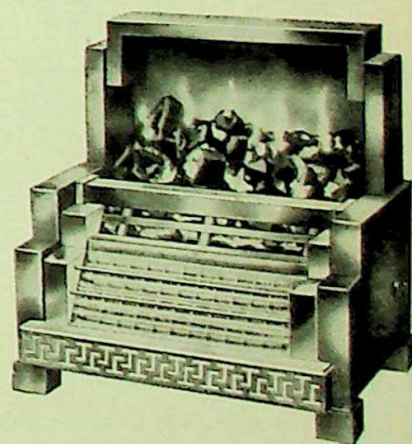
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**AND
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TABLE COOKER No. 83.

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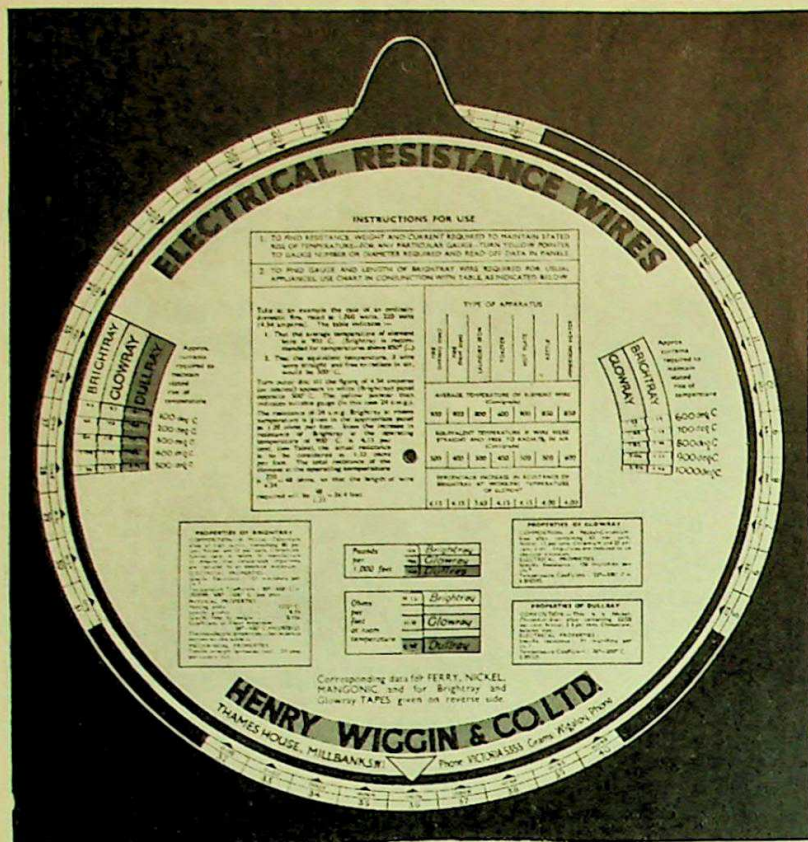
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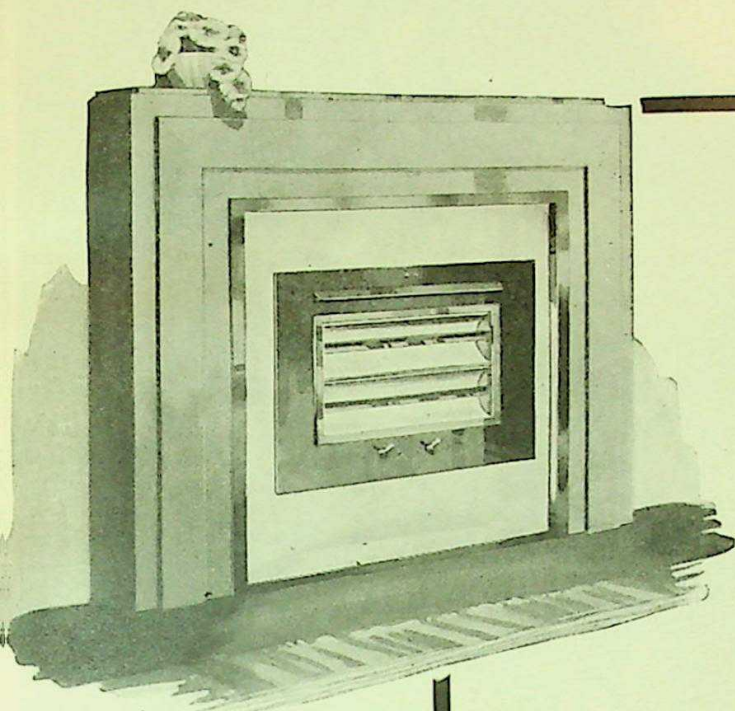
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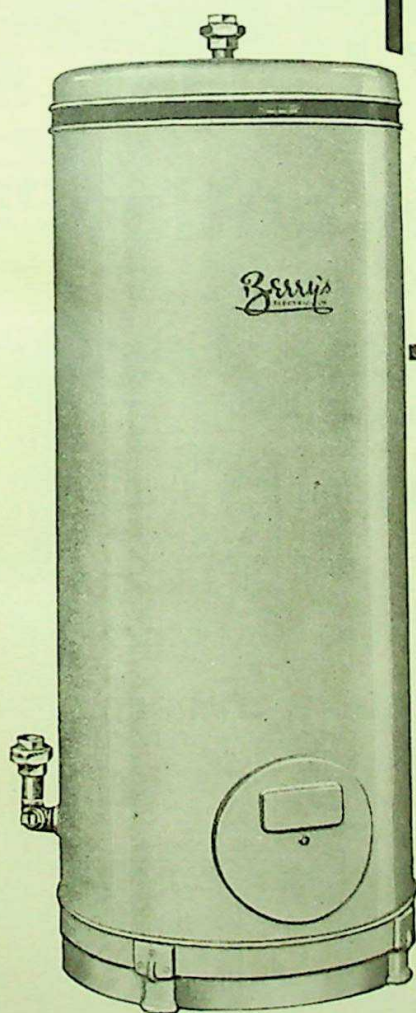


The Mistoberry
Regd. Design

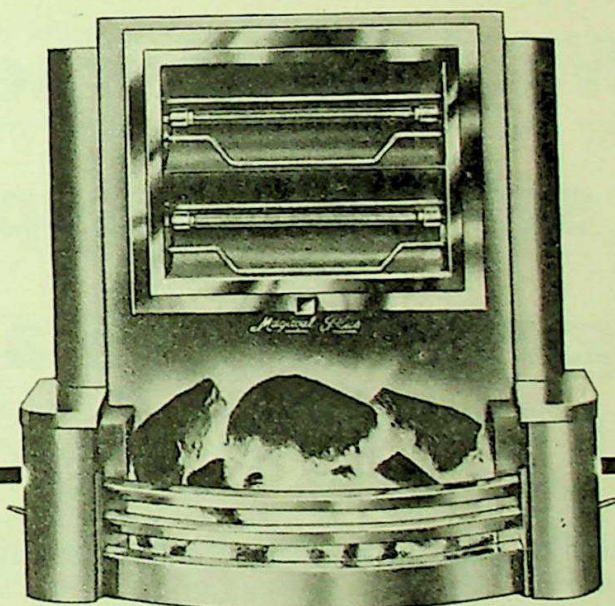
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MAGICOAL-PLUS"

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(57)

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CROMPTON PARKINSON LIMITED

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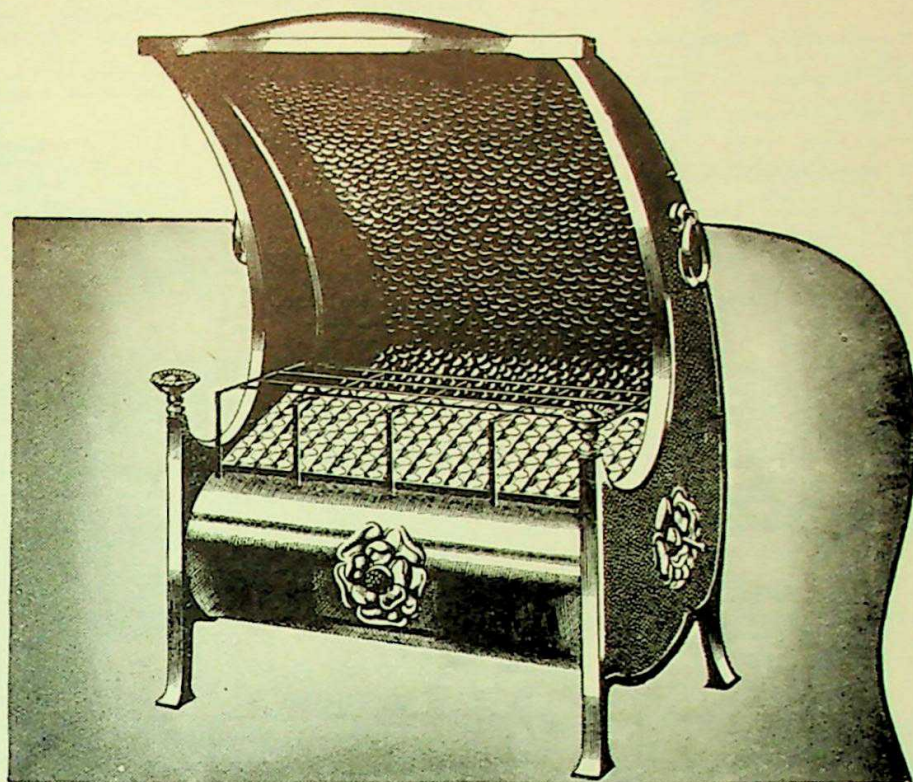
-

LONDON

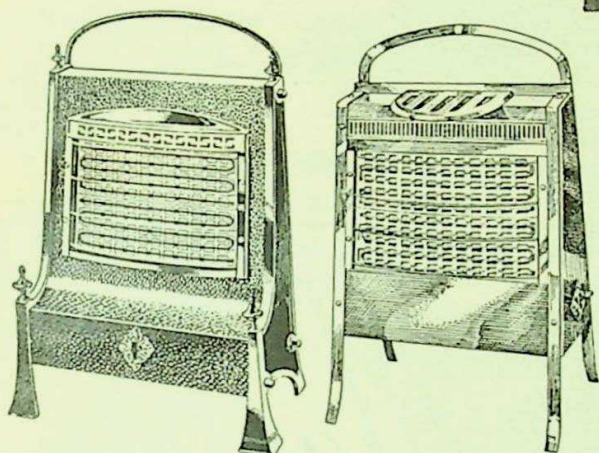
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W.C.2

Sell these Electric Fires and satisfy your customers



The "Lincoln"—a particularly beautiful Carron Portable—strongly made of oxydised copper with hand-hammered copper reflector.



The "Canterbury." Improved ventilation feet and hot air connector. Width 15½ ins. Depth 8 ins. Height 22 ins. In Eggshell, Black Enamel with Polished Copper or Nickel-Plated fittings £2.10.0. Antique Brass or Electric-Bronzed, £3.10.0. Chromium-Plated or "Cromatt" Fabric finish, £4.2.6

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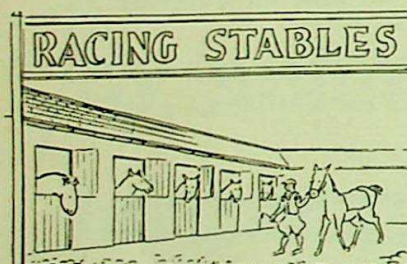
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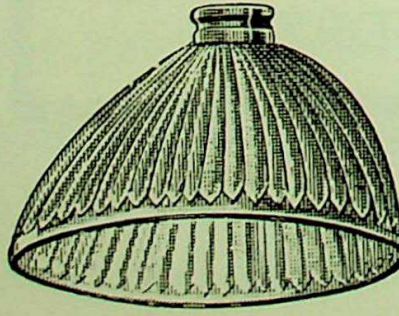
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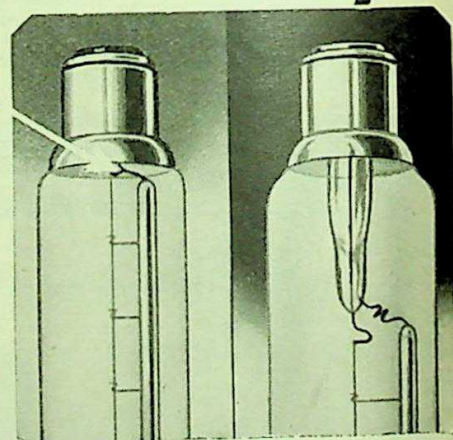
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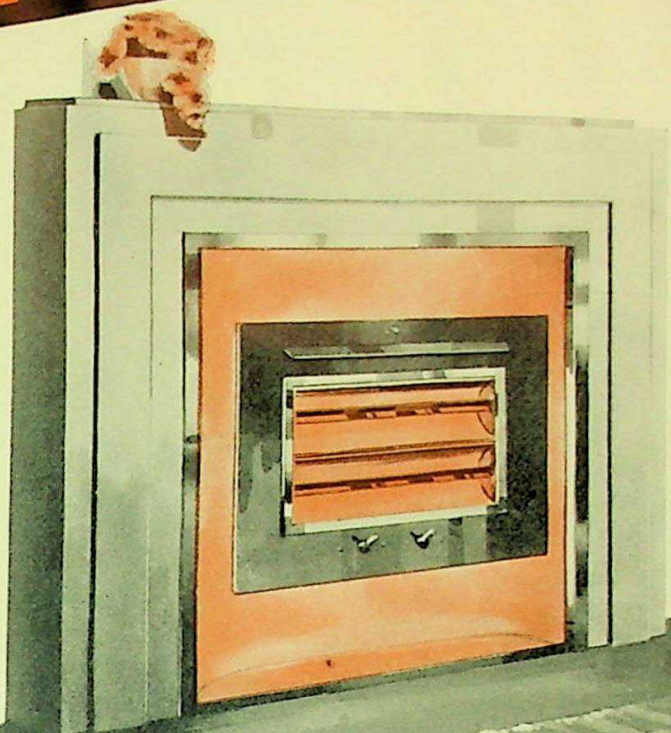
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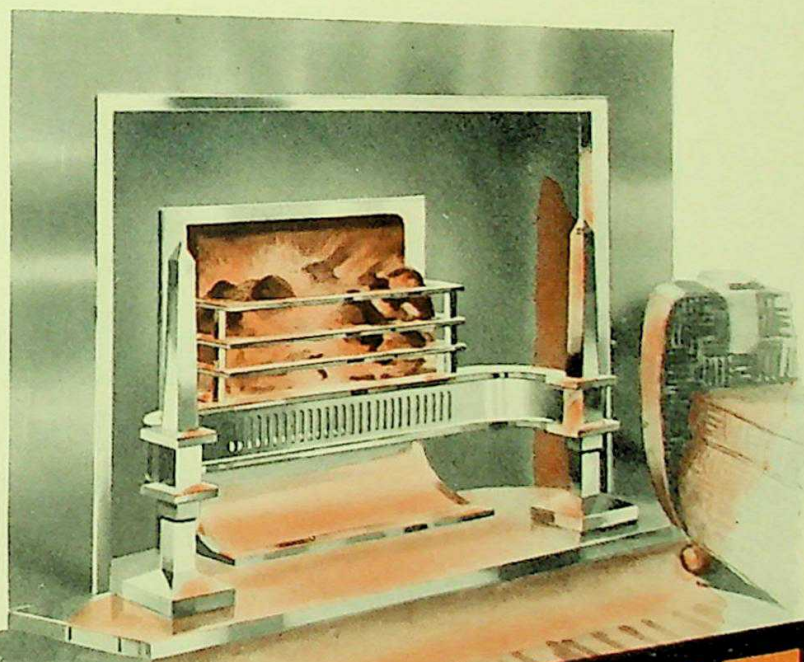
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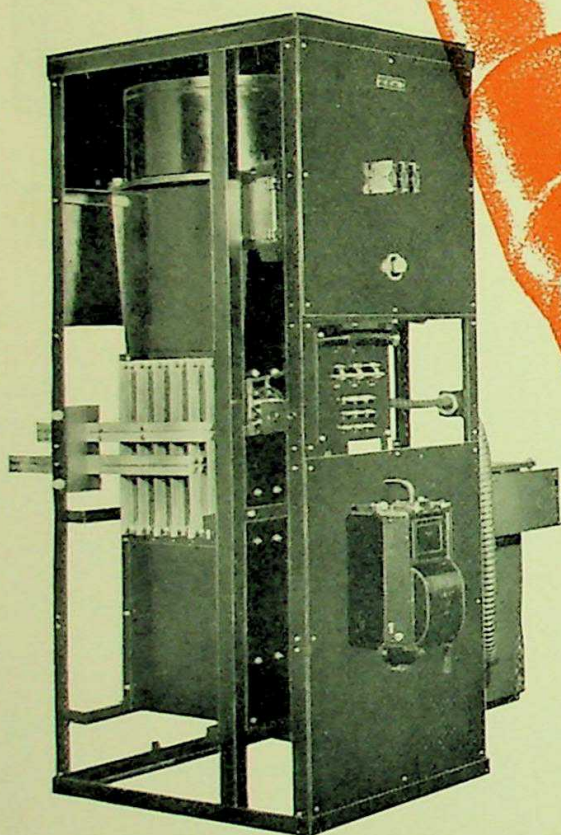
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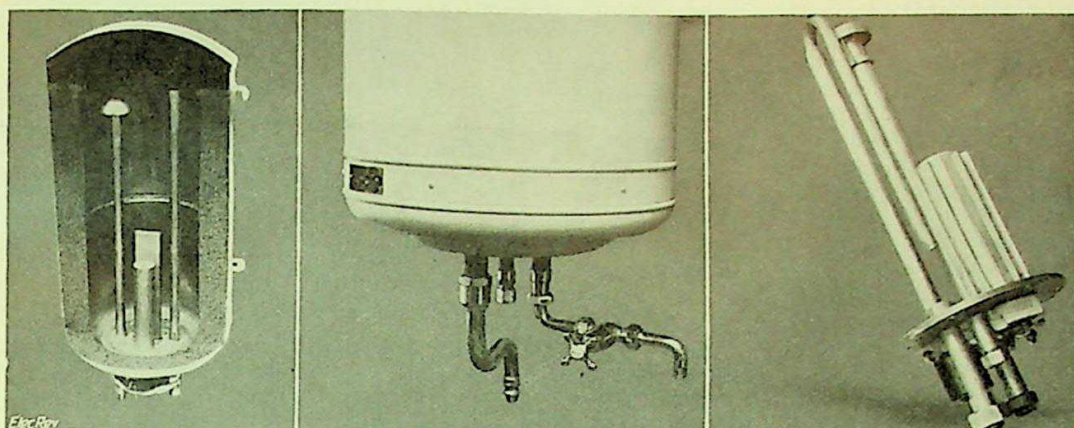
Cooking and Heating Developments

The trend as indicated at the National Convention Exhibition

By OUR SPECIAL REPRESENTATIVE

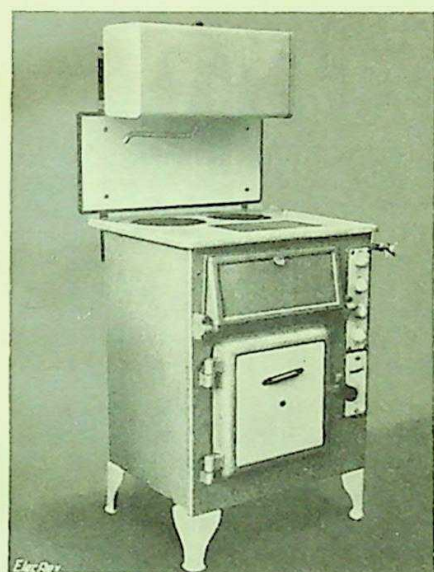
I WOULD not like to have to say what is the more important aspect—commercial or technical—of any one of the most modern developments to be seen at the Exhibition, but it is pretty safe to state that in many cases the commercial

reason is hidden by a technical advantage. I refer to commercial aspect in the narrow sense.



Benjamin water heater with removable top; Heatrae tank with second outlet; "apparatus" of E. E. "Quick Recovery" cylinder

There seems to be something essentially businesslike behind such moves as that of the English Electric Co., Ltd., in introducing a cooker complete as such, but without "frills." I would not dare to call fuses "frills," but Mr. McKenna told me of one large supply undertaking which has reported less trouble as the result of omitting them. An intermittent earth on a plate is not located on test, and the fault is not found until a "dead-short" develops and blows the main fuse, perhaps after several maintenance visits.



Combined cooker and water heater (Hotpoint)

Probably such troubles could be overcome by the earth leakage trip unit introduced by Messrs. A. Reyrolle & Co., Ltd., but this has been designed mainly for use in rural areas where good earths are not readily obtainable. It is essentially a cooker control unit with a magnetic cut-out which trips on 3 mA leakage current.

Automatic oven temperature control was much in evidence, but most makers are not convinced that the development is a good one. Automatic control demands a straight-line temperature curve, whereas good cooking—and particularly electric cooking, I have always been taught—is done on a falling curve. It was all very well to answer the gas "Regulo," I heard, but automatic gas control was introduced to overcome varying pressure difficulties. I even heard it said that if automatic control is to become fashionable, present cooker design will have to be changed.

One good point, I think, was made by Siemens Electric Lamps & Supplies, Ltd., namely, that the automatic system meant finer temperature regulation. Messrs. Moffats, Ltd., pointed

out to me that it affected the overall cost of the cooker very little because of the elimination of the usual oven switch and the thermometer.

On a new "Tricity" table cooker I saw both an automatic control device and a three-heat switch, and Mr. Steele explained that the scheme permitted sectionalising the heat for various kinds of cooking. In the system devised by Simplex Electric, Ltd., there is a simple "on" and "off" switch operated by the remote control rod so that the circuit is switched on at a little less than one-third heat.

On an "Xcel" cooker I saw both the automatic control unit and an incorporated main switch. The main idea behind the latter switch is to facilitate installation work, but I believe a lot depends on the answer, if there is an authoritative one, to the question: Does the built-in main switch comply with I.E.E.

Regulations? "Falco" cookers supplied to Glasgow are of the old British Standard cooker design with the switch box extended downward to take a main switch and a kettle plug.

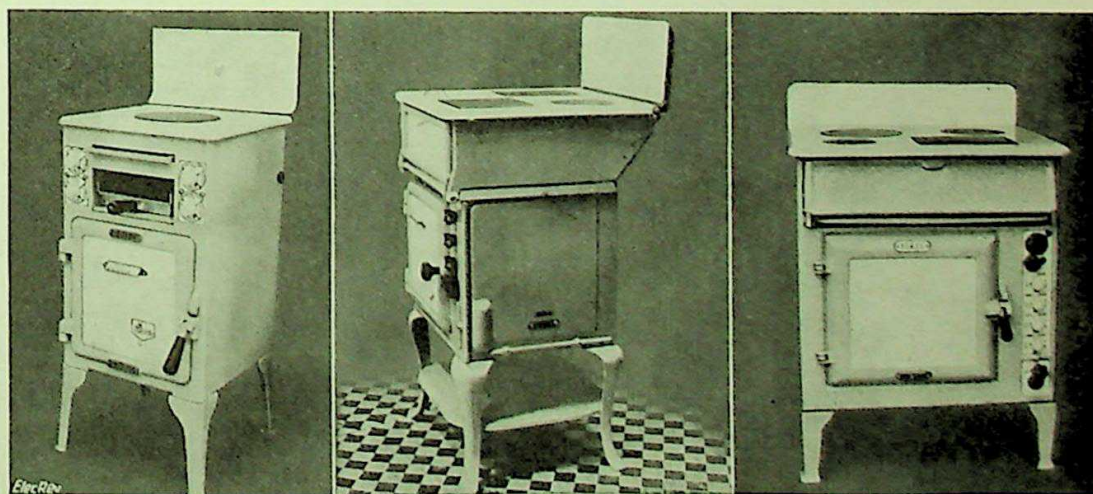
After inspecting a "Tricity" cooker of the normal removable oven interior type, but with the lining fixed and cemented up at the front, I must ask—Is there anything new in the "exterior" oven element idea? But accessibility of the elements from outside the oven, as in Simplex, Belling & British National cookers, is another matter.

It is difficult not to refer to "Colonial-type" cookers, but with further mixing of ideas it may not be necessary soon. The drop-down door is persisted in, however.

To see the new chef's single-unit range, with its drop-down door, displayed by the Jackson Electric Stove Co., Ltd., made me think it a pity that so much space was taken by this type of door in the average small kitchen. Mr. Fright was kind enough to point out to me though, that whereas in commercial cooking it was generally advisable or necessary to have special designs of equipment for certain work, in the domestic field it was essential that one cooker only should serve all purposes. All interested in electric cooking should be constantly reminded of that fact.

Width reduction seems to be the important thing nowadays—at least on the smaller cookers. On the new 93J, Jackson, as compared with the new 92J, an extra boiling plate has been installed without increasing the width by "throwing out" the hob at the back. And then there is the scheme of building in the switches and fuses between the hob or hot-cupboard and the oven such as that employed in the new small "Falco" equipment. I have seen a cooker produced by Revo Electric Co., Ltd., complete with a separate grill (1,500 W), a 2-kW boiling plate, and an oven loaded at 1,500 W, all within a cooker width of 11½ in.

All is not well with the boiler-griller and, candidly, I was delighted to hear a Falkirk representative refer to it as wasteful, while Messrs. Moffats say that it is neither one thing nor



Small Revo cooker with separate grill; Jackson 93J with "thrown out" back; automatic control and main switch on an "Xcel" cooker

minimum wiring code must be made compulsory with effective penalties for infringement. Mr. Alger does not say that the I.E.E. Wiring Regulations should be adopted *en bloc*, but that the present situation is farcical and a menace, and cannot be allowed to prevail much longer.

They must make up their minds between two- and three-pin outlets. Earthed equipment must be used in certain rooms, and it is folly to have two systems in operation. Also serious attention must be given to leakage-trip (circuit-breaker) protection, which is most efficient.

In priority to some of these matters immediate attention should be given to the production of a standardised system of assisted, or hire-purchase, wiring in conjunction with mass-production methods, which would result in better quality and substantially lower cost. A premium should be put on every complete installation provided in the first place. Partly equipped houses are lost to the industry as buyers and users of auxiliary equipment, and over devotion to lighting as the "thin edge of the wedge" has been responsible for much loss of business.

Mr. Alger suggests that the supply section of the industry should consider the possibility of offering a commission to the installation trade based on the number of socket outlets installed on domestic premises. Obstinate clients demand a good deal of "nursing" if complete installations are to be secured; and the first profit to be earned on such complete installations sets a definite limit to the time that can be devoted to securing the necessary installation instructions. It is equally necessary to instruct builders and architects as to what a reasonably complete domestic installation amounts to.

To avoid sinking capital in providing sub-circuits that will never be fully loaded, new consideration needs to be given to the protection of final domestic sub-circuits. The sensible solution seems to the author to be the provision of final sub-circuits with ample socket outlets thereon, but controlled in action by some simple form of electro-mechanical current limiter on the distribution board.

No supply authority can afford to load itself with unnecessary hire schemes. It is much better to urge the public to buy and own its domestic equipment, and existing non-economic hiring of the smaller appliances should be reviewed. A national showroom policy should be drawn up and all legitimate business interests given adequate protection.

The next step of grave urgency involves the setting up of a "Proving House" capable of exercising legal control over the sale of definitely dangerous equipment. So much having been achieved, the compulsory registration of contractors and wiremen could be left for some future, but not too distant, date.

Distribution Technicalities

The third section of the paper is jointly written by Mr. W. N. C. Clinch (representing the I.M.E.A.) and Mr. C. Nadaud (representing supply companies) who regard the authorised undertakers as, by statute, trustees of an essential service and consider that co-operation between all sections is a duty. The Electricity Commissioners' power to formulate joint authority schemes is limited, but the authors consider that steps to that end could now be taken by voluntary co-operation in such zones as geographical and technical considerations indicate to be sound.

In the long run cables laid on both sides of a road are a cheaper method than affording cross-road services. The most economic size of distributor cable should be based upon an assumed maximum demand of 2 kW per consumer, having regard to diversity. The cross-sectional area of cables for distribution purposes should not be less, per conductor, than 0.06 sq. in. As a rule where 4- or 5-core cable is used the area of each section (excluding the fifth core which is used for street lighting and other purposes) can with advantage be standardised at 0.1, 0.15, 0.2 and 0.3 sq. in.

Experience has proved conclusively the advantages of the two-part tariff. The authors prefer the expression "all-in tariff (domestic)" and suggest that it should be adopted generally. Uniformity of tariff, they consider, is essential, and it would be opportune for the Electricity Commissioners to obtain statutory powers for the adoption of such a tariff by all supply authorities. For domestic purposes the fixed charge should bear relationship, not to the rateable value, but to the size of the house and not be calculated on a straight line law. There is no conformity in the "unit" charge. The question is asked: Why should not the basis be standardised as a corollary to the grid tariffs?

Definite steps should be taken to standardise the charges for the hire and hire-purchase of similar apparatus and provision made for the wiring of installations to be carried out to a recognised specification by competent installation engineers. It is not desired to curb progress, but to regularise design in detail by standardisation.

Certain undertakings have set up "Materials Committees" (individual "Proving Houses"). A general application of this principle to all undertakings is necessary, and statutory powers should be granted to prevent the sale or use of materials and apparatus not complying with the minimum standard approved by a nationally constituted authority. It would also be expedient to standardise the declared voltage of supply.

The effects of the domestic load are summarised (and illustrated with tables and graphs) as an increase of electricity sold and its provision for general water heating. The provision of all-mains wireless receivers has, in itself, created a demand. For example, on the occasion of the recent royal wedding the load in one area of the country increased by 15,000 kW, and during the Grand National steeplechase an additional load of 6,000 kW was recorded.

Stimulation results from satisfied users becoming valuable "canvassers." The additional cost of a distribution system necessary to afford adequate supplies for every domestic purpose is relatively small. It is unwise to credit the public with a knowledge of electrical matters which it really does not possess. More effective propaganda is needed, and it is bad policy to cease advertising a line of goods which has secured the market. The authors stress the importance of a National Electrical Exhibition, considering that the time is ripe for such a venture.

To reap the fruits of greater publicity more "development officers" (canvassers) are desired by the authors, who submit that no law has been found to correlate the amount of maintenance necessary on apparatus with the type of consumer, but that it can be said that the least service is needed by the consumer who buys, while greater attention is necessary to those who hire apparatus.

The Electric Vehicle Display at Bournemouth

IN addition to having an information bureau on the E.D.A. stand at the Convention Exhibition, the Electrical Vehicle Committee of Great Britain is arranging parades of battery-propelled passenger and goods vehicles daily during the week. The following are included among the exhibits:

Nelco, Ltd.—A 10/15-cwt. chassis with delivery van body displaying products and luminous sign advertising by "Neoverter" equipment, and a 10/15-cwt. chassis with a 2.5-h.p. motor, axle-mounted direct drive, giving five speeds forward and reverse and half-speed range, has seating accommodation for trial runs. A "pram" chassis with a goods-delivery body has a 1.5-h.p. motor and series-parallel field control, giving four speeds forward and three reverse. A de luxe invalid carriage has four speeds forward and two in reverse, and is provided with two electric brakes.

D.P. Battery Co., Ltd.—A 30-cwt. chassis with covered van body (by permission of the General Electric Co., Ltd., and Carter Paterson & Co., Ltd.) fitted with "Cathanode" type KA21 battery of 320-Ah capacity.

Electricars, Ltd.—An 8-cwt. van, as used by electricity supply undertakings, has a range of 30/40 miles per charge of the standard battery.

Metropolitan-Vickers Co., Ltd. (P. W. Taylor).—Two 10/12-cwt. chassis of the three-wheel type with dairy and baker types of bodies.

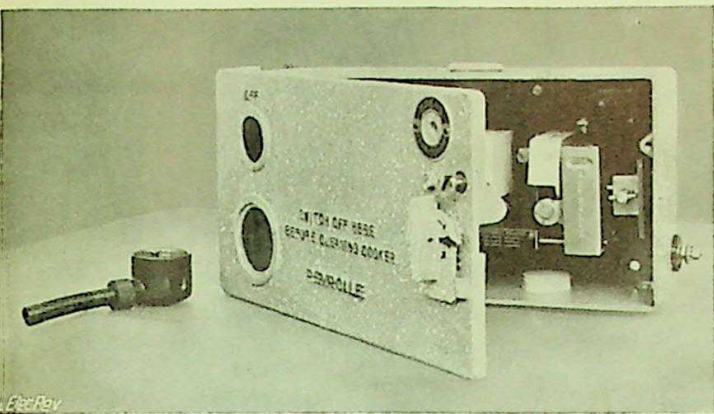
A. E. Morrison & Sons, Ltd.—A three-wheel 6-cwt. chassis

fitted with an air-flow bonnet-type body having a range of 75 miles at a maximum speed of 30 m.p.h.; also four 10/12-cwt. chassis, one without a body, another with a standard body, the third with a special streamlined body, for the Sunderland Corporation Electricity Department, and the fourth with a milk delivery body and a special motor having dual windings for low- and high-speed operation, the different windings being brought into use as the foot accelerator is depressed.

Partridge, Wilson & Co., Ltd.—Two 15-cwt. chassis, one fitted with a ventilated-type traction motor and "fluid" automatic controller, and the other with a general delivery van body; also a private town coupé with a special Mulliner streamline body, which has a range of 33/40 miles and a cruising speed of 27 m.p.h., as well as three 8-cwt. chassis, one with a streamline body similar to those supplied to the West Ham Corporation Electricity Department, and the others with a van body and a closed milk distributor body, both having a totally enclosed traction motor with asbestos insulated windings and a relay interlocking-contact controller.

Victor Electrics, Ltd.—A chassis with a van body, is suitable for loads up to 25 cwt. with speeds up to 20 m.p.h., and another, for loads up to 15 cwt., has four forward speeds and three in reverse and is fitted with new quick-charge batteries, giving double mileage from one vehicle.

the other. Two moves to speed up boiling are the Creda stainless-steel bar covers and the lighter casting permitted by the special cast iron used by the English Electric Co. On the latter company's stand I learnt that the enamelled top boiler-griller has proved popular in the North for the direct cooking of scones. And I have heard of a new low-voltage griller-boiler ("Tricity") with ten steps within load-



Reyrolle control unit with earth-leakage trip

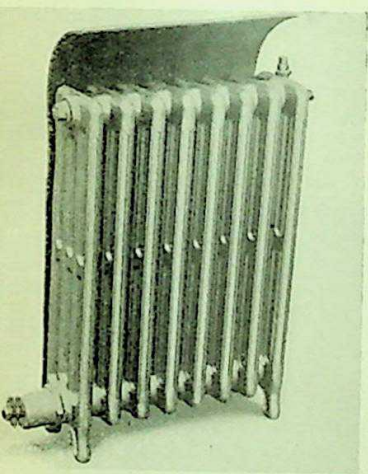
ing limits of 800 W and 2,250 W, while Falk, Stadelmann showed me their purely experimental infinitely variable control system. The transformer flux is made variable by a hinged "link" in the core.

The novelty of the exhibition, I should say, is the combined cooker and water heater shown by the Hotpoint Electric Appliance Co., Ltd., closely following its combined cooker and refrigerator. I feel pleased about the former because the ELECTRICAL REVIEW has repeatedly stressed the importance of linking to some extent water heating and cooking. The cooker-refrigerator idea is purely one of space saving.

Because I have heard more than ever about larger quantities of hot water at quick demand I feel inclined to ask: Are we departing from the thermal storage idea of a tank large enough to meet normal requirements over a period? After all, thermal-storage water heating is a sound and essentially electrical development. Of course if sufficiently high loadings are to be permitted and are practicable, quick heating to any degree will be a fairly straight problem.

Of the moves I saw to afford more adequate supplies of hot water quickly there is the Simplex scheme in which the hollow immerser acts as a circulating tube while heat is emitted from outside the tube into the bulk of the water. An English Electric development embraces a short element in a finned case which creates turbulence, and has only a 3-deg. difference of temperature between the top and bottom.

In the larger displacement tanks produced by Messrs.



H.W. radiator with insulated back deflector (Geo. Nobbs)

-gal. tank with two 2-kW heaters (one boosting) is giving the service previously provided by a 60-gal. tank with one kW heater.

I believe that a double outlet non-pressure tank developed by Electric Fires, Ltd., will meet a definite need. The second outlet is taken to the kitchen downstairs where it carries a p. But this outlet can only half empty the tank or to a reel above the top of the element. The arrangement will avoid journeys to the bathroom for supplies of hot water in the kitchen, but refilling can only be done from upstairs. Not an ideal arrangement, but an advantage where the ideal is probably unattainable. This company also showed me an lagged tank with a circulator, and so did Messrs. Archibald (10 gal., 4 kW). Here again is simple equipment, com-

paratively crude perhaps, but something which represents advance to a certain class of consumer, and will bring business to the manufacturer and the supply industry.

My attention was drawn to many schemes for overcoming scaling difficulties, and the main idea seems to be to increase the heat emission area of the element unit. In the new equipment produced by Aidas Electric, Ltd., in which the heat is transmitted through a non-deteriorating semi-liquid the emission area is doubled. The fins on the element unit in the English Electric "Quick Recovery" equipment to which I have already referred result in a loading as low as 10 W per sq. in. Reyrolle's quoted 7 to 8 W per sq. in., pointing out that in the larger equipments they use two or three separate elements. But with 2 W per sq. in. (on the larger sizes) I should think the flexible immerser produced by the J.P. Tubular Heater Co., Ltd., takes the prize.

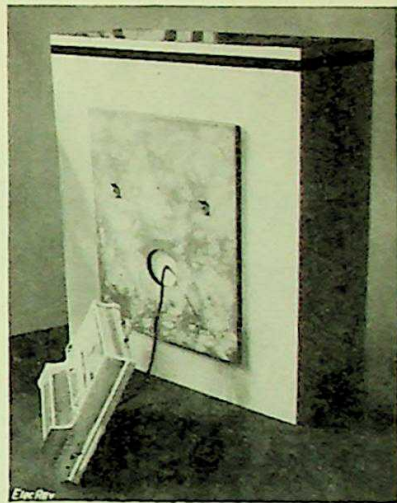
I think fire manufacturers must be having rather a prosperous time just now. Time and time again have I heard that inset fires are selling "like hot cakes." It seems that the large modern estate builder has realised that he can save £10 or more per house by the elimination of a chimney or so, even when installing a fairly high-quality electric fire. The development is really extraordinary.

In this class of equipment I include wall and panel fires which do not require any brick excavation. Messrs. Ferranti, Ltd., have a fire which hangs on to its surround, and can be

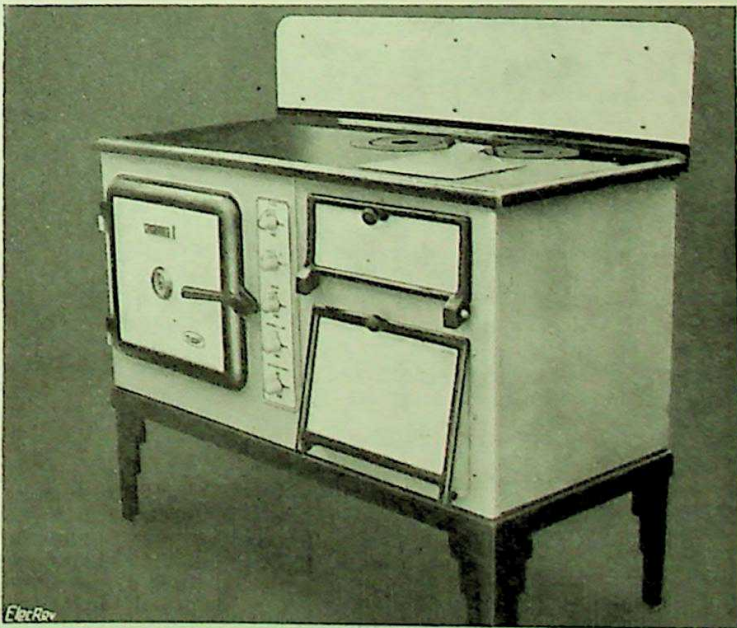
hooked off and used as a portable unit by virtue of a back bracket. Messrs. Belling & Co. showed me one which hangs on to its tray back which is first screwed to the wall. Corner fires, mantel-shelf units, horizontal and vertical bars, and reflected rod elements, special imitation fuels, double flickering arrangements, "crushed strawberry" and chromium plating finishes are just a few of the refinements which I saw.

Every two years or so most makers talk "psychological effect"—just for a little while. One of the latest efforts in this direction is the new reflector fire produced by the Manor Electric Oven & Fire Co., Ltd., the horizontal-rod elements are separately reflectored, and near the bottom of each trough there is a slit. Light from a ruby lamp at the back of the reflector is projected through the slits, impinging on the rods which are thereby reflected as glowing elements in the reflectors.

Messrs. Greene, Phillips & Co. have modified their element design so that all the convectors are very much reduced in overall size. There are still four coils per kW, but now each coil is split and the two sections are arranged concentrically, so that there is the same loading and the same surface area within decreased overall dimensions in the various types of cabinets.



Ferranti panel fire as a portable



"Tricity" cooker with automatic control and three-heat switch

Some Particulars of the Exhibits

Nearly seventy manufacturers are participating in the exhibition which is being held at the Winter Gardens, Bournemouth, in conjunction with the Convention. This is an increase of about ten on the number at the I.M.E.A. Convention last year. Readers will notice from a perusal of the following notes that, in spite of the British Industries Fair having only just concluded, several manufacturers are exhibiting new products for the first time.

Aidas Electric, Ltd.

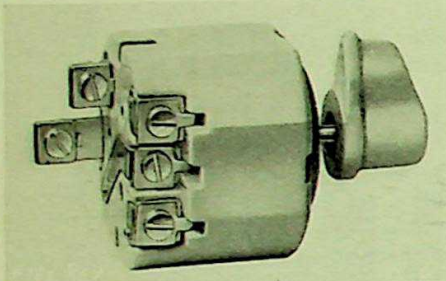
The most recent addition to this range of "Sadia" domestic water heaters is a 1.5-gal. model of the free outlet pattern which incorporates a positive anti-drip device. Safety and the minimisation of internal furring have received special attention in the design.

Archibald Low Electrics, Ltd.

Various types of water storage heaters range in size from 1.5 to 20-galls. capacity and consist of the open outlet type, combined cistern and ball valve type, and the pressure type. Special attention is drawn to the rectangular model which is claimed to be particularly suitable for hard water. In the 1.5-gal. rectangular-type heater an anti-drip device is incorporated which can be removed through the top of the tank and cleaned without removing the baseplate. Other items are immersion heaters, top- and side-entry circulators, small heaters for fitting under basins, tubular heaters, and instantaneous water boilers.

Arrow Electric Switches, Ltd.

Rotary switches range in size from 3 to 35 A at 250 V for flush and surface



An Arrow double-pole side-connected cooker switch

mounting. Shown for the first time is a complete range of flush mounting rotary switches with connections on the back to take care of every load requirement between 3 and 35 A. In addition there is a new double-pole 3-heat, side-connected cooker switch that is interchangeable with the present types of single-pole, 3-heat, side-connected cooker switches.

Water heater control units consisting of a white cellulose enamelled pressed steel box fitted with a rotary switch and pilot light are introduced for the first time.

New tumbler switches have been specially designed to meet present-day requirements of all types of domestic appliances using small motors. The switches are the enclosed type, dust-proof, and for flush mounting. They are provided with special arc snuffers.

A complete range of motor starting switches for electric tools is also being exhibited.

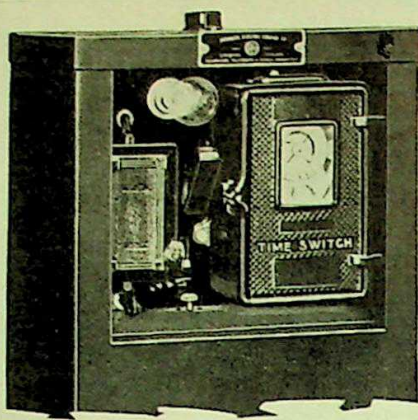
Apparatus (illus.) for mechanically and electrically testing both tumbler and rotary switches with varying load capacities and circuit arrangements is an exact copy of the one used in the factory for testing quantities of switches taken from each production run. There is also a display showing the various manufacturing processes.

Automatic Light Controlling Co., Ltd.

This range of "Gunfire" time switches includes hand-wound types for 16-40 day runs, also synchronous motor-driven models, and several other types.

Automatic Electric Co., Ltd.

Demonstration equipment for the "Strowger" system of centralised street lighting control shows how up to 500 street lights over a radius of $1\frac{1}{2}$ miles can be switched "on," "half-off," and "off" automatically from one central point. The equipment consists essentially of a master transmitter (illus.), which may be located for convenience in the central or sub-station, and a lamp unit (an electro-magnetic switch) for each street light. The lamp units are built to standard pattern and are interchangeable. No pilot wires are required and instantaneous emergency control is provided.



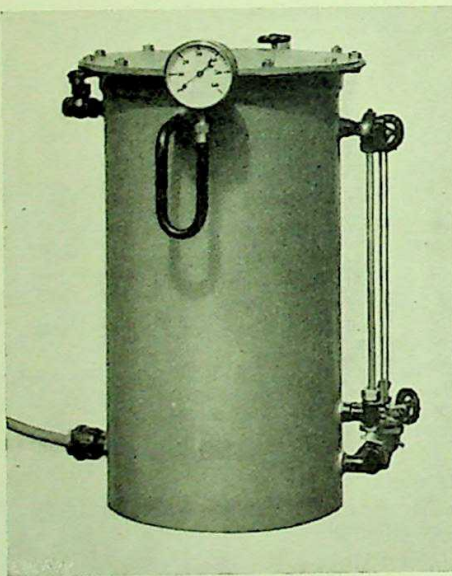
Part of a self-contained master controller of the A.T.M. centralised street lighting control system

In addition, a large display piece will depict a typical street scene with automatically controlled lighting.

Bastian & Allen, Ltd.

Besides their more normal use for heating private residences and larger buildings, garages, baths, etc., small electrode boilers (illus.) are used for steam raising for steam-cooking, hospital sterilising, and in dairies, &c.

The special electrode steam boiler designed for farmers, dairymen and small steam users can be set for any loading up to 20 kW and evaporates 60 lb. per hour at 15 lb. per sq. in. pressure. As steam is raised within a minute of switching on, the boiler is only in circuit during the time that steam is being used. A working model of one of the larger boilers appears on the stand.



Electrode steam boiler (Bastian & Allen)

An example of the range of the different types of domestic electric water heaters manufactured serves to show the robust nature of their design and the pleasing external finish.

Belling & Co., Ltd.

A full range of electric cookers includes the new *de luxe* model fitted with a door consisting of two thick plates of glass with an air space between to provide heat insulation. The special construction prevents "steaming." The oven is fitted with "Temset" automatic control of temperature and is back-vented and is removable.

To the smaller models there has been added the "Modernette" on legs with a shelf beneath. The 1.5-kW self-contained oven has a heat indicator and the 2,000-W combined boiler griller on the hob is sufficiently large to keep several pans boiling at the same time. The new "Baby" Belling has a total loading of 2,500 W, the single heat oven element

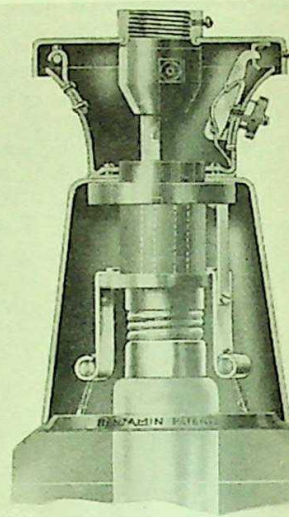
being of 500W. The double-purpose boiler-griller plate can be used above and below simultaneously. A similar plate is fitted to the new breakfast cooker, which has a drop-down door.

The display is completed with a selection of the latest built-in fireplaces with coloured surrounds and wall panel radiators of varied designs. The projection at the back is only 1 in. so that the fires can be fixed without cutting away the wall or plaster.

Benjamin Electric, Ltd.

This display consists almost exclusively of industrial and commercial lighting equipment. Particular emphasis is laid on the "Saflux" system (illus.), which utilises reflectors that are detachable complete with lamp as one unit.

This method simplifies wiring and hanging, improves earthing, and keeps



Benjamin "Saflux" lighting unit section

connecting cables cool. The supplementary reflector makes it impossible the lamp cap to be touched when making contact with the lampholder, thus shock risk is minimised. The supplementary reflector redirects 50 per cent. more useful light which is normally lost up the neck.

Berry's Electric, Ltd.

The main item is a replica of a section of the principal room in the gift house presented to the King by the Royal Warrant Holders Association, showing one of the Berry fires designed for installation therein.

Other fires of the latest types are on view in one of the company's travelling showrooms which will be in attendance at the show. Water-heating apparatus including a new type of circulator, will be available for inspection in another travelling showroom.

Bournemouth and Poole Electric Supply Co., Ltd.

This company's stand is in the form of an inquiry bureau, together with a lounge. The company's new offices and showrooms were officially opened recently, and an illustrated description of the building appeared in our last issue.

George Bray & Co., Ltd.

The newest item is an "anti-scale" immersion water heater. It consists of a separate heating chamber, in which "Chromalox" elements are enclosed. Insertion into the storage tank. Motors are provided for automatically filling auxiliary chamber when first put into service and also for making good loss due to evaporation. Scale deposits in heating chamber are therefore limited to the hardness of the initial quantity of water admitted, plus the make-up, which is very small due to the construction of the heating chamber.

Metal-clad embedded type strip

XCEL

ALL BRITISH

ELECTRIC COOKERS

many attractive and novel features

PLUG-IN ELEMENTS THROUGHOUT

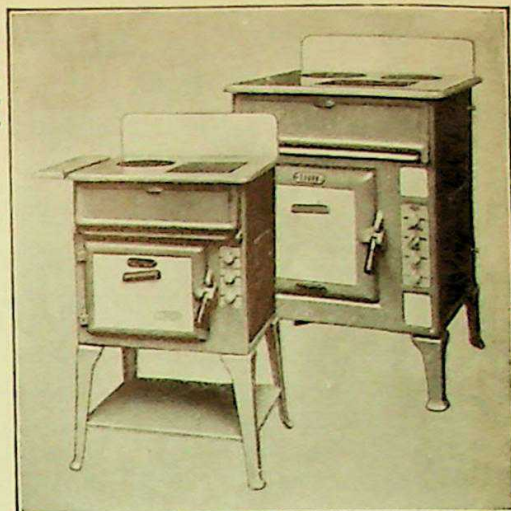
LARGE HOT CHAMBER SPACE

NEW HIGHLY EFFICIENT GRILL BOILER

RAPID OVEN HEATING WITH NEW TYPE ELEMENTS

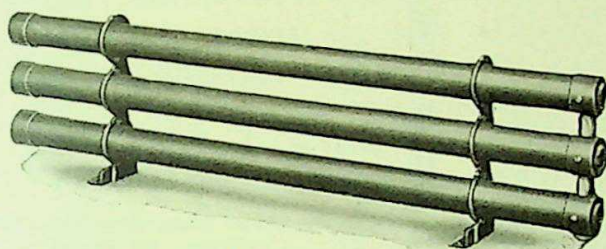
ALL UNDER-HOB FITTINGS EASILY REMOVABLE

PROVISION FOR MAIN SWITCH, SWITCH-PLUG AND PILOT LIGHT IF REQUIRED—ELIMINATES NEED FOR SEPARATE CONTROL PANEL



"XCEL" TUBE HEATERS

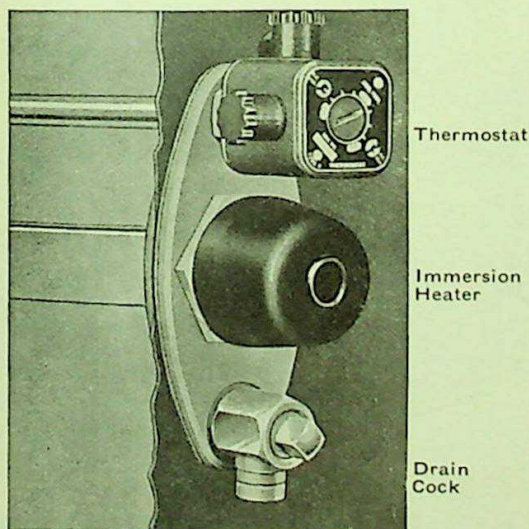
Neat, unobtrusive and easily fitted. Novel busbar connecting link simplifies wiring of banks of Tubes.



"XCEL" HOT WATER STORAGE TANKS

SIMPLE—EFFICIENT—RELIABLE

All fittings in contact with water non-ferrous. Write for List No. 493, in which the many outstanding features of this Hot Water System are described.



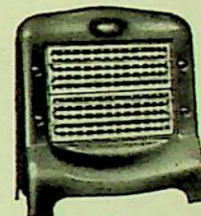
IMMERSION HEATERS & FLANGES FOR TANK CONVERSION

Fit the THREE in one simple operation with the new XCEL Flange.

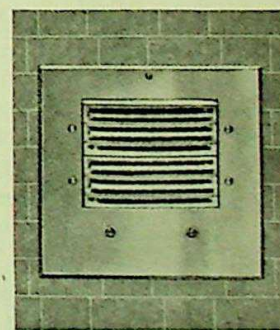
ALL "XCEL" BLADE IMMERSERS HAVE EASILY RENEWABLE ELEMENTS.



"COSYGLO" imitation Coal Fire with Moving Flame and Smoke effect. Made in attractive designs.



Moderately priced and efficient. Ideal for Hiring schemes.



A very attractive Chromium Plated 2 kW. Fire of the Flush Fitting Type.

VISIT STAND No. 33 at the
NATIONAL ELECTRICAL CONVENTION
BOURNEMOUTH.

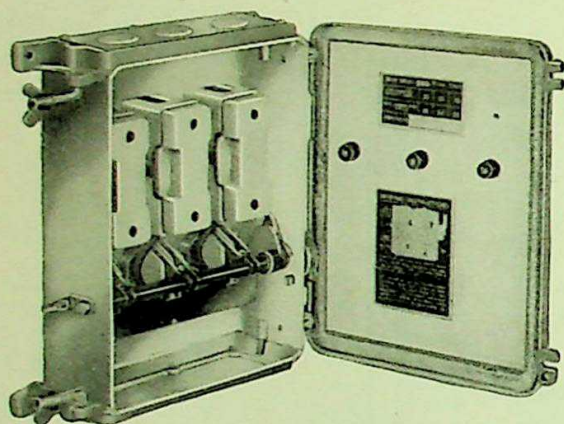
SIEMENS ELECTRIC LAMPS & SUPPLIES, LTD., 38/9, UPPER THAMES ST., LONDON, E.C.4.

Branches: BELFAST, BIRMINGHAM, BRISTOL, CARDIFF, DUBLIN, GLASGOW, LEEDS, LIVERPOOL, MANCHESTER, NEWCASTLE, NOTTINGHAM, SHEFFIELD, SOUTHAMPTON.

“We want something better than ordinary porcelain for gear as good as this”

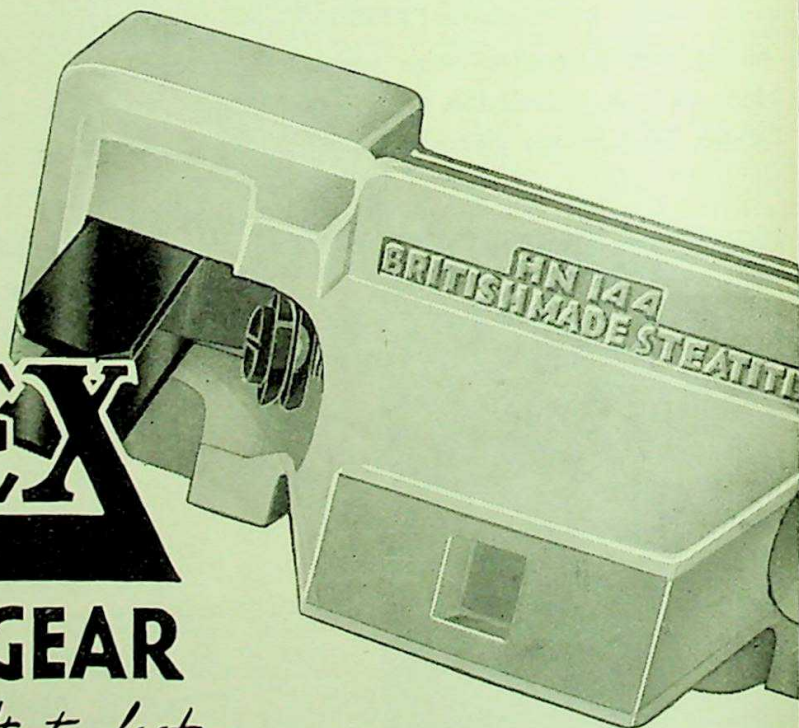
— said Simplex designers —

That's why we use STEATITE



The supreme S.E.S. Gear, an example of which is illustrated, has, in addition, a novel multiple-spring reciprocating switch action scientifically designed to prevent “inching” and to ensure instantaneous make and break. Cases are enormously strong and permit any arrangement of inlets and outlets. See the full description in List No. S.W. 1415.

This British-made vitrified steatite is twice as strong as ordinary electrical porcelain and will withstand very high arcing temperatures. That is why, when it was decided to make every detail of Simplex S.E.S. Gear the very best of its kind, steatite was the logical choice for fuse units and switch bases. Now, most of the Simplex Standard Gear also has this valuable feature.



SIMPLEX

SWITCH & FUSE GEAR

Designed to satisfy — built to last

SIMPLEX ELECTRIC COMPANY LIMITED, EMPIRE HOUSE, GREAT CHARLES STREET, BIRMINGHAM, 3
— AND BRANCHES —

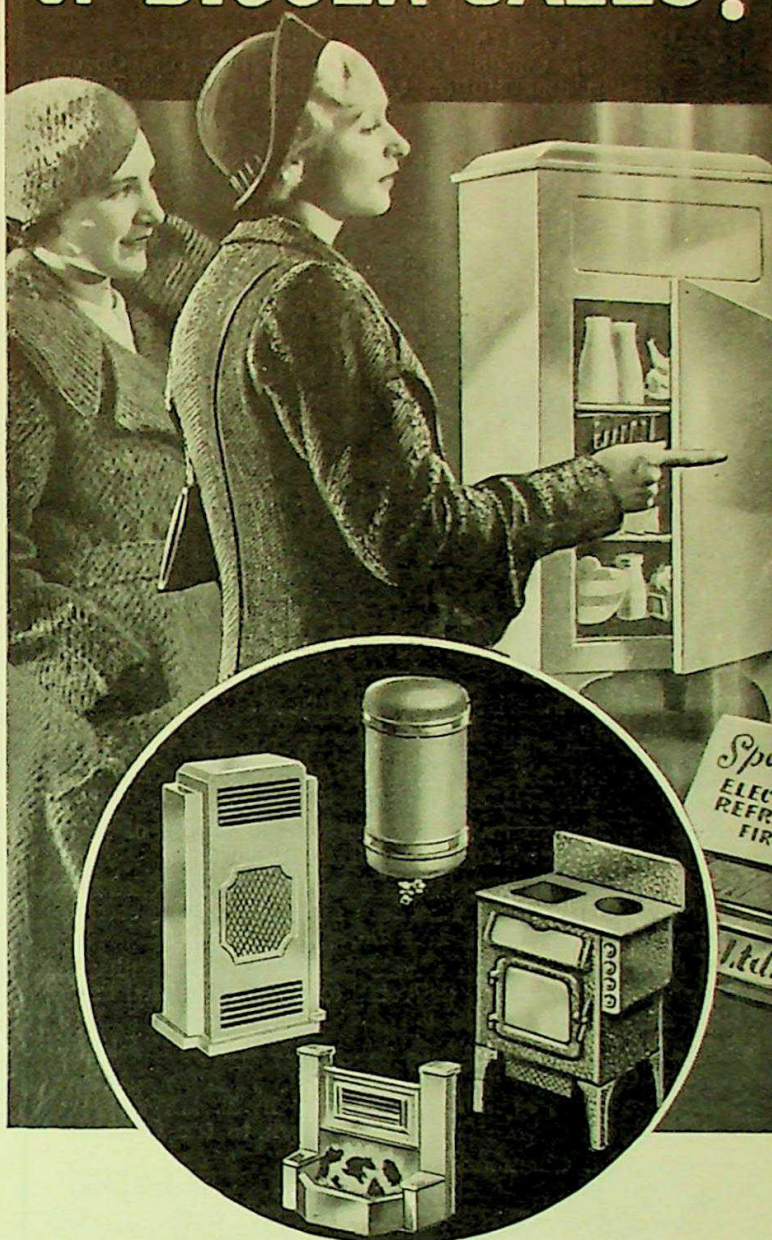
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MANUFACTURERS OF HIGH VOLTAGE
LUMINOUS TUBES IN ALL COLOURS
& MAINTENANCENEON RAYS LTD
15, WHITCOMB ST., PALL MALL EAST
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OF BIGGER SALES!

Utility unadorned is no longer sufficient—the latest "FOOCHOW" Finishes are part and parcel of modern selling plans. Heat-resisting finishes, in beautiful colours at a fraction of previous cost—processing time alone reduced by as much as 75%—these are just two of the achievements of our ELECTRICAL RESEARCH DEPARTMENT.

Please address enquiries to Service Manager, Dept. 7.

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ORIENTAL LACQUER

The Speediest of all High-Class Finishes for FIRES, COOKERS, REFRIGERATORS, WATER HEATERS, SWITCHGEAR WORK, etc.

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DEVICES FOR COAL SAVING.

ROBERT H. PARSONS,
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Pages.

5 Diagrams

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West House, Stamford Street, London, S.E.1
E.R.17.

OFFICIAL NOTICES.

Advertisements are inserted under this heading at 14s. per inch.

BOROUGH OF EALING.**Electricity Department.**

TENDERS are invited for the supply and delivery of the undermentioned Stores and Materials for the period of twelve months ending 31st July, 1936.

- 1.—House Service Cut-outs and Jointing Materials.
- 2.—Stoneware Conduits and Pavement Frames and Covers.
- 3.—Paraffin and Mutton Cloths, Tallow, Washing Soda and Candles.

Conditions, Specifications and Forms of Tender may be obtained on application to the Borough Electrical Engineer and Manager.

Tenders addressed to:—

The Borough Electrical Engineer and Manager,
Electricity House,
Ealing, W.5,

must be delivered at my office not later than 10 a.m. on Friday, 21st June, 1935.

No Tender will be received unless it is in a plain, sealed envelope, bearing the words "Tender for Electrical Stores," or if the envelope bears any name or mark indicating the sender.

RONALD BIRT,
Borough Electrical Engineer and Manager.

Electricity House,
Ealing, W.5.
4th June, 1935.

3706

MEXBOROUGH URBAN DISTRICT COUNCIL.**Electricity Department.**

SUPPLY OF E.H.T. SWITCHGEAR AND 1-3 PHASE 10,000/400 VOLTS TRANSFORMER.

THE above Council invite Tenders for the supply of Extra High Tension Switchgear and Transformer.

Copies of Specifications and Conditions may be obtained from E. Andrews, A.M.I.E.E., Engineer and Manager, Electricity Department, Station Road, Mexborough.

Sealed Tenders, in plain envelopes, endorsed "Tender for Switchgear, etc.," must be delivered to the undersigned before noon Monday, June 17th, 1935.

The Council do not bind themselves to accept the lowest or any tender.

F. E. HALL,
Clerk to the Council.

Midland Bank Chambers,
Mexborough.

31st May, 1935.

3694

BOROUGH OF TAUNTON.**Electricity Department.**

THE Electricity Committee of the Taunton Corporation invite Tenders for the supply and delivery of GLASS BULB TYPE RECTIFIER EQUIPMENTS to deal with a normal load of 400 kW, with adequate spare unit.

Tender Form and Specification can be obtained (subject to payment of one pound deposit, which sum is returnable on receipt of a bona-fide Tender), upon application to the Borough Electrical Engineer, No. 1, St. James' Street, Taunton.

The Corporation does not bind itself to accept the lowest or any Tender.

Tenders in plain sealed envelopes endorsed "Tender for Rectifier Equipment," must be delivered to W. H. Bailey, Esq., Town Clerk, Municipal Buildings, Taunton, not later than Monday, 24th June, 1935.

ARCH. J. HOWARD, A.M.I.E.E.,
Borough Electrical Engineer.
3708

COUNTY BOROUGH OF SOUTH SHIELDS.**Electricity Supply Department.**

TENDERS are required for 86 Electric Wash-boilers galvanised exterior finish. Capacity, 10 gallons. Loading 3,000 watts and footpress control, fitted on side of boiler. Complete with 4 ft. 6 in. or 3-core cab tyre flexible cable, 220 volts.

Tenderers must submit specification and sketch. Tenders to be addressed to the undersigned and delivered not later than Saturday, the 15th instant.

JAMES EDGAR,
Borough Electrical Engineer.
3711

OFFICIAL NOTICES.—Continued.**THE MALDEN & COOMBE URBAN DISTRICT COUNCIL.****Electric Lighting.**

TENDERS are invited from Electrical Contractors and Manufacturers for a complete scheme of electric lighting on the following road:—

London-Windsor (Kingston Hill-Kingston Vale).

Particulars may be obtained from the Engineer and Surveyor to the Council, Council Offices, New Malden.

Tenders must be submitted to the undersigned on or before 24th June. There should be no name or mark indicating the sender.

The Council does not bind itself to accept the lowest or any Tender.

JAMES WM. JOHNSON,
Clerk of the Council.

Council Offices,
New Malden, Surrey.

31st May, 1935.

370

COUNTY BOROUGH OF SOUTHBEND-ON-SEA.**Electricity Department.**

TENDERS are invited for the supply of TRANSFORMER AND SWITCHGEAR.

Specification, General Conditions and Form of Tender may be obtained from the undersigned. Tenders, enclosed in plain sealed envelopes endorsed "TENDERS FOR TRANSFORMERS AND SWITCHGEAR," must be deposited with the Town Clerk, Municipal Buildings, Clarence Road, Southend-on-Sea, not later than July 4th, 1935.

ARTHUR C. JOHNSON,
Borough Electrical Engineer and Manager.

85, London Road,
Southend-on-Sea.

3rd June, 1935.

371

SPALDING URBAN DISTRICT COUNCIL.**Electricity Department.**

TENDERS are invited for the supply of 7,500 yards of E.H. Cable and Joint Boxes, full particulars of which can be obtained from the undersigned, together with the necessary Form of Tender.

Tenders in plain sealed envelopes endorsed "Tender for Cable" but bearing no other mark or indication of the sender must be addressed and delivered to the "Clerk, Spalding Urban District Council, Market Place, Spalding," not later than 12 noon June 22nd, 1935.

The Council do not bind themselves to accept the lowest or any tender.

ENGINEER AND MANAGER

Winsover Road,
Spalding.

372

URBAN DISTRICT COUNCIL OF THORNTON CLEVELEYS.

TENDERS are invited for the supply and delivery of H. and L.T. Paper Insulated Cables, as required during the twelve months ending June 30th, 1936.

Specifications may be obtained from the Electrical Engineer, Electricity Department, Council Offices, Thornton.

Tenders must be enclosed in a plain sealed envelope bearing the words "Tenders for Electric Cable" AND BEARING NO NAME OR MARK TENDING TO INDICATE THE SENDER and must be delivered to the undersigned not later than noon on the 19th June, 1935.

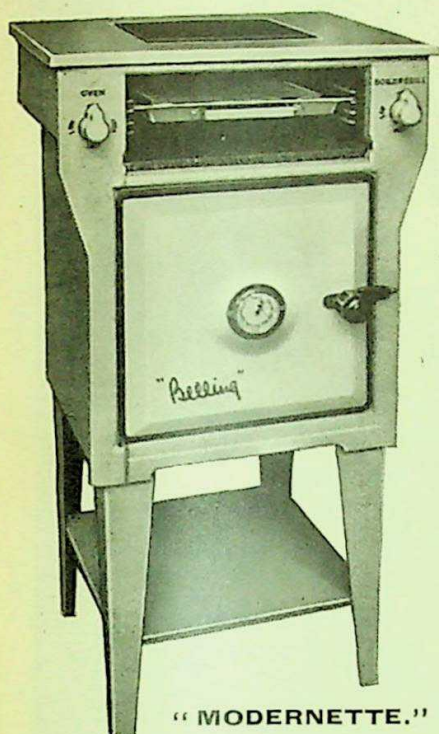
C. G. RANSOME WILLIAMS,
Clerk of the Council.

Council Offices,
Thornton.
1st June, 1935.

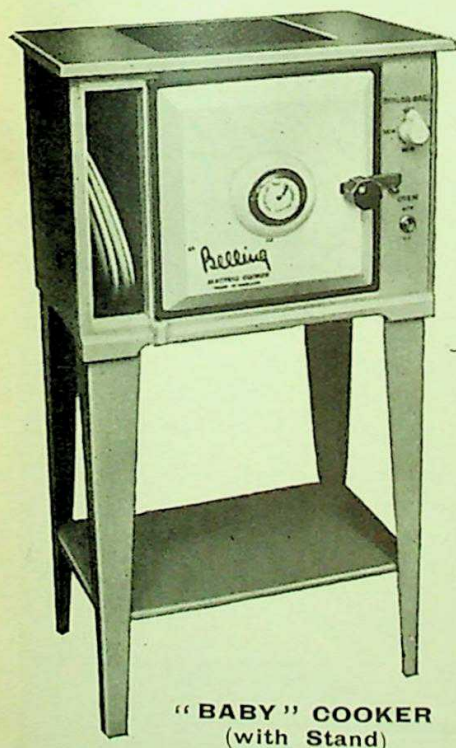
373

(Continued on Supplement 58.)

4 *New additional* "BELLING" ELECTRIC COOKERS!



"MODERNETTE."

"BABY" COOKER
(with Stand)

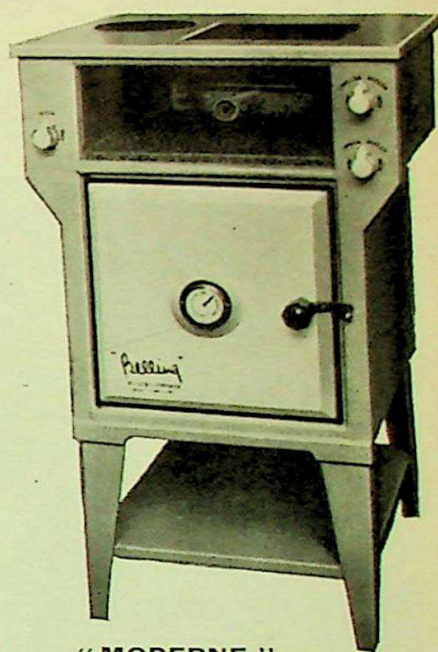
Here are Belling's four new cookers — additional to the standard "Belling" range. They're an attractive quartette, aren't they? — they're just the thing for small modern kitchens. Very strongly made of pressed steel, they are all finished in vitreous enamel.

"BELLING" BABY COOKER
(without Stand) List No. 40 £3.19.6

"BELLING" BABY COOKER
ON STAND List No. 40 £4.19.6

"BELLING" MODERNETTE
COOKER List No. 41 £6.10.0

"BELLING" MODERNE
COOKER List No. 41A £7.19.6



"MODERNE."

"BABY" COOKER
(without Stand)

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GLASGOW
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BRISTOL
2-5, Nelson Street.
(Bristol 24081, 3 lines)

BELFAST
10, Royal Avenue.
(Belfast 2846)

CAPE TOWN
R. C. Jack & Son, 47-51, Burg Street

EXTRACT FROM

EXTRACT FROM
London Gazette

OCTOBER, 1934

the construction and pattern of the
Commissioners
for the measure-
ment of electrical energy when supplied on the
alternating current system at a frequency of
30 cycles per second and known as the Ferranti,
Type F.L.V. Polyphase Alternating Current
Watt-hour Meter, of rated sizes 5, 10, 20 and
30 amperes, 400 volts.
Provided that the meter
disconnected in the space

any Local Act relating to Electricity, the Electricity Commissioners approve of the construction and pattern of the meter (hereinafter described) for the measurement of electrical energy when supplied on the constant pressure, two-wire, single phase alternating current system, and known as the Ferranti, Type F.L. Single Phase Watthour Meter, rated sizes 2.5, 5, 10, 20 and 50 amperes, 230 volts at a frequency of 50 cycles per second.

The meter be constructed as specified and drawings additional Physical Laboratory spec. dated and

Electricity Commission,
Savoy Court,
Strand, W.C.2.
October,

10th October, 1934.

10th October, 1883.

For the purposes of the Electricity (Supply) Acts, 1883 to 1893, and all Orders and Licences made or granted and issued thereunder, and any Local Act relating to the supply of electricity, the Electricity Commissioners approve of the construction and pattern of the meter (hereinafter described) for the measurement of electrical energy when supplied on the constant pressure, four wire, three phase alternating current system at a frequency of 50 cycles per second and known as the Ferranti Type F.L.X. Polyphase Alternating Current Watthour Meter of rated sizes 5, 10, 20, 40 and 50 amperes, 230 volts.

Provided that the meter be in accordance with the specifications of the International Association of Testing Machines.

Electricity Commission,
Savoy Court,
Strand, W.C.2.
23rd June, 1932.

Electricity Comm.
Savoy Court,
Strand, W.C.2.
23rd June, 1932.

For the purposes of the Electricity (Supply) Acts, 1882 to 1928, and all Orders and Licenses made or granted and issued thereunder, and any Local Act relating to the supply of electricity, the Electricity Commissioners approve (hereinafter described) for the measurement of electrical energy when supplied on the constant pressure, two wire, single phase alternating current system, and known as the Ferranti Type F.L.P., Single Phase Prepayment Watthour Meter; rated sizes 2½, 5, 10, 20 and amperes, 230 volts, at a frequency of 50 c/s.

Provided that—

HIS MAJESTY'S
POOOCK ST

Paris Fair and Lighting Congress. By S. H. Kahn

Two notable events of electrical interest

WITHIN the past few weeks there have been held the annual Paris Fair, which is perhaps the oldest and most important of the French commercial exhibitions, and a congress in Paris dealing with the use of electricity for the illumination of buildings.

The Fair is one at which manufacturers make a point of exhibiting their latest developments, and the electrical section this year was outstanding in this respect. For convenience the section was divided into two parts, one of which was

of the Fair was a press for moulded material with electrically heated plates and developing 60 tons pressure.

More headway has been made in the case of large electric water heaters. Lemercier Frères showed a series of these, including a 66 gal. model. The same concern also exhibited a battery of two electric water heaters for hot-water radiator systems. The heaters are of the horizontal type and are rated at 100 kW at 600 V. The boilers are heat-insulated as well as the ends of the elements and connections. Each element is

equipped with a contactor regulated by a thermostat placed in the top of the boiler and also by a distant control button. A series of heating resistances woven in chrome nickel is shown by Plancher in widths up to about 24 in. and lengths up to 32 ft. 9 in.

With regard to electrical installations a novelty shown was the Socliso connector. This consists of a base in moulded material and a brass bar, the base being designed in such a way that any desired number of bars can be put together without apparent joint. This end is attained by making the base represent one side and the bottom, the second side necessary to hold the brass connection bar in place being formed by the next piece. The brass connection bar is held firmly in place by a series of projections in the bakelite base. These connectors can be screwed directly

on to any metal connection box or switchboard.

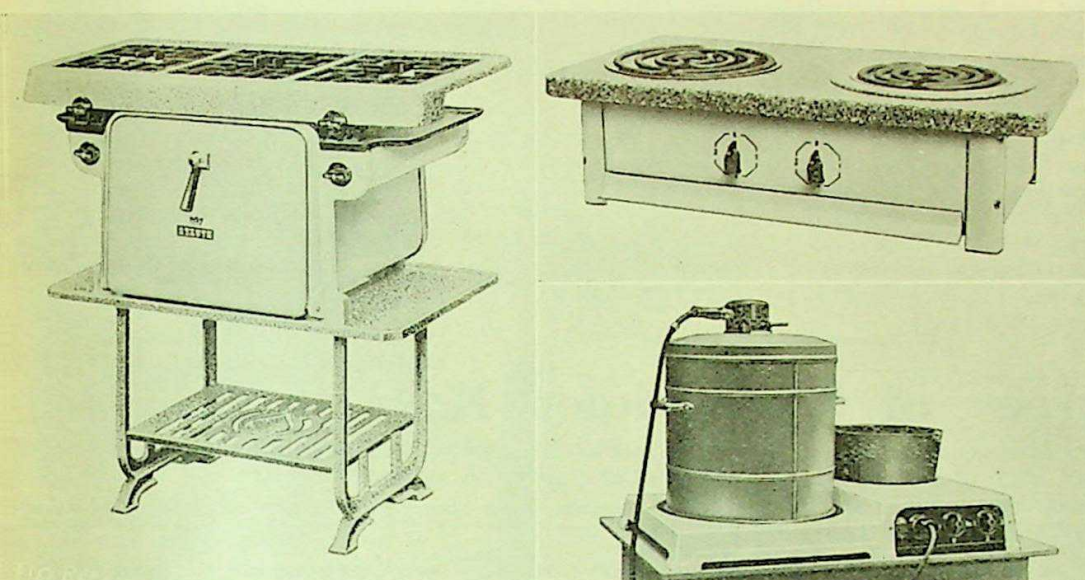
Among electric cookers the "Electro-Econome" model attracted much attention. It is composed of two plates, one of which is arranged with a bell cover. With this cooker it is possible to prepare dishes without supervision being necessary. This is done by having a connection to the top of the bell which, when a certain temperature is reached inside, reduces the heating to a point at which the temperature is kept constant. The cooker is provided with a series of saucepans which fit on to each other so that two or three dishes can be prepared together. Other accessories permit the bell to be used as an oven, and a large vessel is obtainable in which fodder for animals can be prepared at night. The connected load is 2,600 W, but the average consumption is much lower.

devoted to machinery and appliances and the other to radio apparatus. There have been signs in the past year or so that French concerns are taking up the manufacture of motors for special applications, and many new types, formerly made only abroad, were demonstrated. Particular progress in this line has been made by Eve & Noizet, who exhibited a large variety of special motors, including small silent-running motors for various domestic uses which were shown for the first time at the Fair.

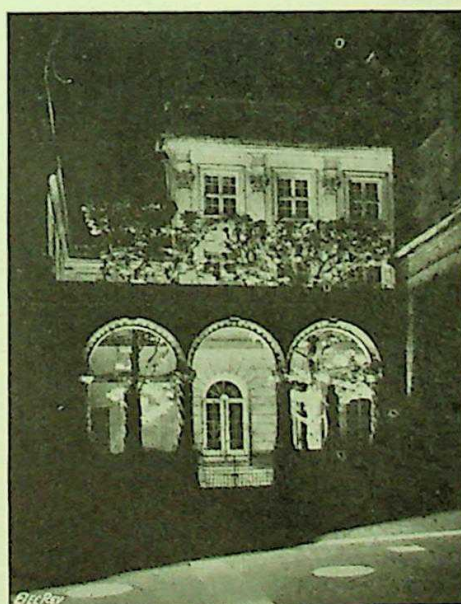
Several manufacturers showed motors with automatic starting devices, the most common being a system of resistances built into the rotor or attached to the rotor shaft and arranged so that they are cut in or out according to the speed of the motor. Another system, used on the Drouard motors, consists of three resistances connected in star formation, each shunted by an inductance coil. During the starting period the current frequency of the rotor is high and the current passes through the resistances, but as the speed increases and the frequency decreases the current begins to flow partly through the inductance coils. When the motor reaches its maximum speed all the current is passing through the coils and the resistances are automatically short-circuited.

French manufacturers are continuing to develop armoured equipment for various uses, while many connection boxes for use with steel conduit or with lead-sheathed wire and cables are also made by French concerns; formerly these came almost entirely from abroad. Of this type Desmet exhibited a particularly complete line.

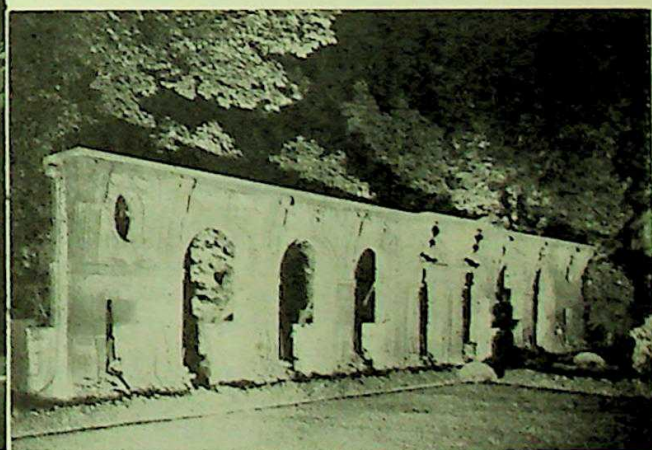
A section to which special attention has been paid this year is that devoted to heating, which was organised by the Société pour le développement des Applications de l'Electricité. In a hall off the main part of the electrical display there was a variety of furnaces and ovens, as well as smaller appliances. As regards furnaces progress was largely in detail improvements, one of which was the fact that most of the exhibits had built-in electric pyrometers. Also of interest in this part



Left: A cooker (Arthur Martin) the plates on top of which are heated by gas and the oven by electricity. Right: A dual hot-plate of novel design (top) and a section of an "Electro-Econome" cooker



A portico in the entrance court of the Ecole des Beaux Arts silhouetted against the building, which is lighted by incandescent lamps (Cie des Lamps). On the right is an arcade in the gardens, the illumination of which was carried out by Philips



In the radio section there were one or two new sets, but from a technical point of view the industry has made little progress. One which merits special mention is a combined radio-phonograph and sound film projector. In this apparatus the projector is in the back and throws forward the image by means of a series of mirrors on to a screen which folds up into the top of the machine. It takes any ordinary sound or silent film.

Among the illumination schemes carried out on the occasion of the lighting congress was a practical demonstration

at the Ecole des Beaux Arts. This building was lighted by the principal electrical concerns to show the various effects which could be obtained. One façade was lighted by the Compagnie des Lampes. The slight relief of this section made it necessary to place the twenty-five 1,000-W projectors to one side to bring out the form. Yellow screens were used to give a warm light. The same company carried out the flood-lighting of a sculptured wall and statues in the gardens, using four projectors with 450-W lamps. A portico in the gardens was silhouetted in rather agreeable fashion by lighting the part of the building behind it with four 1,000-W lamps and projectors.

The Société Philips lighted the front court with a combination of white incandescent and sodium vapour lamps giving interesting colour combinations. For this purpose thirteen projectors with 100-W sodium lamps and twenty with 1,000-W lamps of the incandescent type were used. The chapel, lighted inside and out by Philips, had three projectors with 1,000-W incandescent lamps on the outside, lighting up the upper part of the building. The lower part was lighted by two projectors with 250-W lamps placed behind a colonnade standing out from the façade. On the left side a moonlight effect was provided to contrast with the warmer colouring of the rest of the building. Four projectors with 400-W mercury-vapour lamps were used for this purpose. In the interior lighting an effect of depth was sought, and this was obtained

by lighting up the room proper with four projectors containing 400-W mercury-vapour lamps, arranged at two different depths. One of the lamps at the back was fitted with a blue screen. Contrasting with the blue lighting of the room, the painting on the back wall was lighted with five projectors containing 1,000-W incandescent lamps.

A section of the gardens was decoratively illuminated, a combination of mercury and sodium lamps being used; these brought out the leaves of the shrubbery in a most artistic way.

The lighting of the façade on the Quai Malaquais by Claud Paz & Silva presented particular difficulty, especially as it had to be done by discharge tubes. The tubes, in special reflectors, were placed on a scaffolding across the street to one side of the building in order to bring out the low relief on the façade. So as not to interfere with the traffic in the street the projectors were fitted with screens. The tubes used were neon and mercury vapour combined to give an effect of sunlight.

The entrance gardens of the Ecole des Beaux Arts were lighted in the same way, the tubes being placed on the entablature of the entrance arcades so that the light fell on the trees, statues and the building at the back. The load required for this was 6 kW. In order to obtain an effect of red shadows two similar reflectors containing only neon tubes were placed on the shrubbery, shining upwards and lighting the trees from below.

Sources of Ultra-violet Rays

THE three main divisions of solar radiation received at the earth's surface are infra-red rays of wavelengths from 7,300 to about 25,000 Angstrom units (1 AU = 10^{-8} cm.); visible rays from 4,000 AU (violet) to 7,300 AU (red); and ultra-violet rays from about 2,900 to 4,000 AU. The ultra-violet radiations may be divided into the long-wave band from 3,200 to 4,000 AU, and the medium band of 2,900 to 3,200 AU consisting of rays stimulating to living organisms. Ultra-violet rays of less than 2,800 AU wavelength have often a destructive effect on living cells, but such rays are absorbed from solar radiation by the atmosphere. The carbon arc lamp and the quartz enclosed mercury arc emit ultra-violet rays of all wavelengths in such quantities that their use should always be under competent advice. The types of lamp described by J. Roger in *Revue Générale de l'Electricité* emit practically no ultra-violet rays of less than 2,800 AU wavelength, but yield considerable quantities of ultra-violet radiation in the useful range from 2,800 to 3,200 AU.

The lamps are of three types, viz.:-

(1) Over-run filament lamps, operated at about 5 per cent. above normal voltage and lasting 500-300 hours according to their design; (2) a special type of arc lamp operating in an atmosphere of mercury vapour, as explained below; and (3) a luminescent tubular lamp of the hot-cathode and low-pressure mercury vapour type. In all cases the enclosure is of glass transparent to wavelengths down to 2,800 AU.

A Special Arc Lamp

The accompanying illustration shows the essential features of the special arc lamp, a glass bulb with screw cap containing a drop of mercury *G*, and two tungsten electrodes *E* shunted by a coiled tungsten filament *F*. The lamp is fed from an auto-transformer with leakage characteristics such that the voltage at the lamp is at first 30 V, falling to 15 V when an arc is established at *A*m between the electrodes *EE*, consequent upon the rise in mercury vapour pressure due to heat from the incandescent filament.

The establishment of the arc results in the current increasing from $9\frac{1}{2}$ to $27\frac{1}{2}$ A or from 2 to $8\frac{1}{2}$ A according to the size of lamp concerned. Steady burning is attained in from 5 to 8 mins.

The life of the lamp is reduced by over-running to much the same extent as that of an ordinary filament lamp; it is also reduced, however, by under-running, owing to the delay which then occurs in transferring the arc from the filament to the electrodes *E*. Unless the lamp is kept vertical, there is considerable reduction in the ultra-violet radiation of energy (to about 55 per cent. when the axis of the lamp is at an angle of 45 deg.), this being due to the reduced heating effect of the filament on the mercury.

The following table compares the distributions of energy

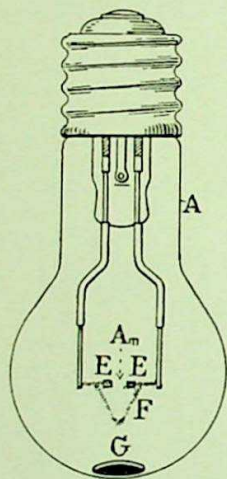


Diagram of the special ultra-violet ray arc lamp

in the spectra of the newer mercury arc and hot-cathode lamp with that of a quartz-enclosed mercury arc.

RELATIVE DISTRIBUTION OF ENERGY FROM SOURCES OF ULTRA-VIOLET RAYS

Wavelength (Angstroms).	Tungsten electrodes in mercury vapour (400 W).	Hot-cathode mercury vapour discharge (35 W).	Quartz-enclosed mercury arc.
2,530	0	1.580	8.260
2,650	0.736	0.690	6.720
2,700	0.245	0	0
2,750	0.294	0	1.290
2,800	1.715	0.480	3.630
2,890	1.910	2.370	2.080
2,970	7.400	7.300	5.200
3,030	14.450	5.920	10.100
3,130	39.200	35.600	22.300
3,220*	0.270	0	0
3,340	3.130	2.560	3.620
3,480*	0.367	0	0
3,660	29.400	43.500	36.800
3,800*	0.880	0	0
Total relative energy	100.0	100.0	100.0

* Radiation on these wavelengths is from the incandescent tungsten.

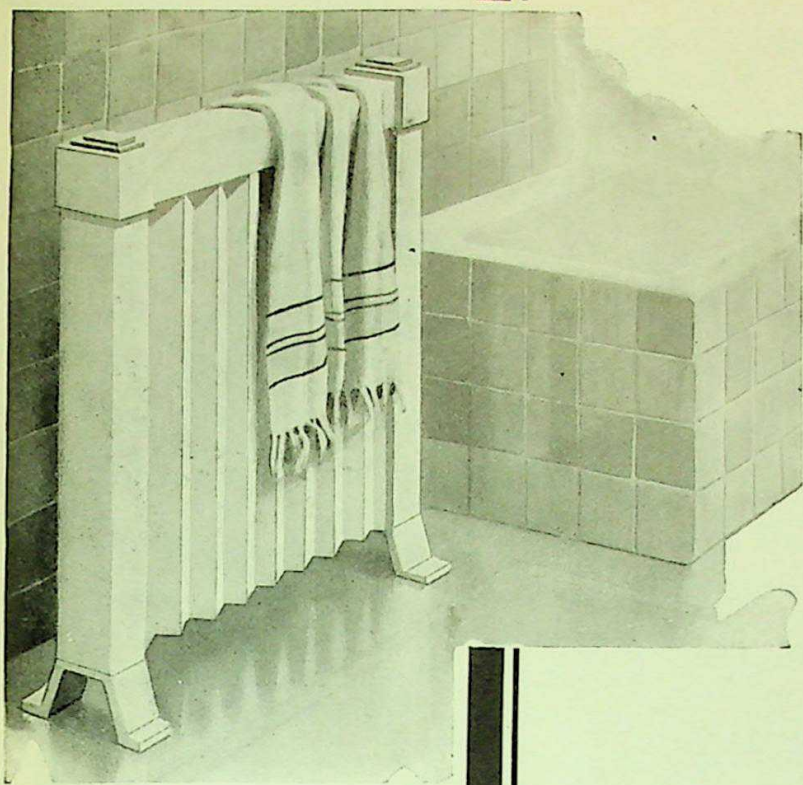
Silvered or enamelled surfaces absorb incident ultra-violet rays, but chemically "satinised" aluminium reflects 80 per cent. of these rays and has also a slight diffusing effect. The co-efficient of reflection of polished aluminium is only 40-45 per cent. for rays between 2,800 and 3,200 AU. That of bright chromium is 55-60 per cent., and this finish is used for concentrating reflectors.

While the most beneficial amount of ultra-violet treatment varies considerably with the person concerned, and should always be administered under medical guidance, much progress has been made in the quantitative comparison of the therapeutic effects of different sources. For a given source there is a definite ratio between the illumination in lux and the intensity of the erythema effect of the ultra-violet ray. The number of lux-minutes required to produce erythema approximately as follows:

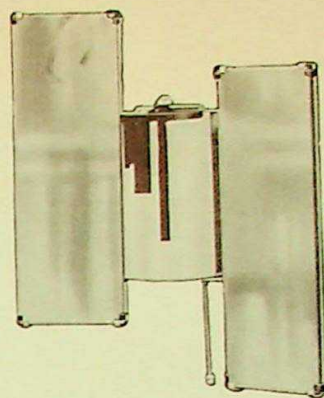
Source.	Lux-minutes.
Summer sun, at mid-day	1,800,000
Over-run incandescent lamp (500 W)	1,000,000
Tungsten-electrode arc in mercury atmosphere (400 W)	35,000
Ditto (130 W)	65,000
Quartz-enclosed mercury arc	3,000
Luminescent mercury-vapour hot-cathode lamp (35 W)	16,250
Ditto (75 W)	28,500

In order to apply these data it is only necessary to measure the illumination *E* on the irradiated surface by a luxmeter. Then the appropriate value of lux-minutes divided by *E* gives the time, in minutes, for erythema, and the normal period of exposure will be from one-tenth to one-quarter of that time.

Treatment of poultry during the winter, say from 3 a.m. until sunrise, by incandescent lamps emitting ultra-violet rays increases the egg yield and accelerates the maturing of pullets. Animals and plants indigenous to hot countries benefit considerably from such treatment during the winter in northern lands, and increasing use is being made of ultra-violet lamps in zoological gardens, aquaria and stock-breeding establishments, in the testing of materials and for chemical and sterilising processes.



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Mirror Light is a popular
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or Boudoir.

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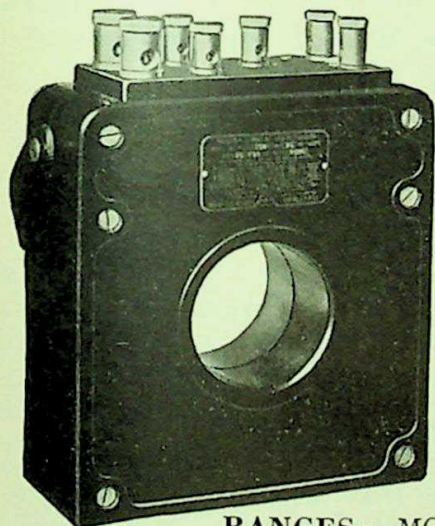
BERRY'S ELECTRIC LTD.

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Also BIRMINGHAM and NEWCASTLE-ON-TYNE.

WESTON introduce two NEW PRECISION TRANSFORMERS



MODELS 327 and 328

CAPACITY: 25 VA.

FREQUENCY: 25-133 cycles.

DIMENSIONS AND

WEIGHTS: Model 327, $9\frac{7}{8} \times 7\frac{1}{2} \times 3$ in. Weight $12\frac{1}{2}$ lb.
Model 328, $10\frac{3}{8} \times 9\frac{1}{2} \times 3\frac{1}{2}$ in.
Weight $16\frac{1}{2}$ lb.

- ★ Extreme Flexibility
- ★ Remarkable Accuracy
- ★ Reasonable Price

RANGES: MODEL 327:—1,200, 600, 400, 300, 200, 100, 50, 20, 10 to 5 amperes.
MODEL 328:—2,500, 2,000, 1,800, 1,600, 1,500, 1,400, 1,250, 1,200, 1,000, 900,
800, 750, 600, 500, 400, 300, 250, 200, 160, 150, 140, 125, 120, 100 to 5 amperes.

RATIO ACCURACY:—These transformers are accurate within approximately 0.1% from rated current at 50 cycles and with a 15 VA load.

PHASE ACCURACY:—These transformers have phase accuracy within approximately ten minutes for any current from rated to one-tenth rated current at 50 cycles, and with a 15 VA load.

*The prices of WESTON Models 327 and 328 are unusually low for instruments of such remarkable range and accuracy.
Please write for further particulars.*



The Sir Thomas Lipton Memorial Hostel

“Osidge,” Chase Side, Southgate, for many years the home of that famous sportsman, the late Sir Thomas Lipton, is to-day the headquarters of the Southgate Queen’s Nursing Association.

The ancient house contains many reminders of the successes of his famous yachts “Shamrock.”

Henley “Superite” Cables were used for the complete re-wiring carried out by E. Wight & Co., Hill Top, Muswell Hill, N.10.



Superite

(Regd.)

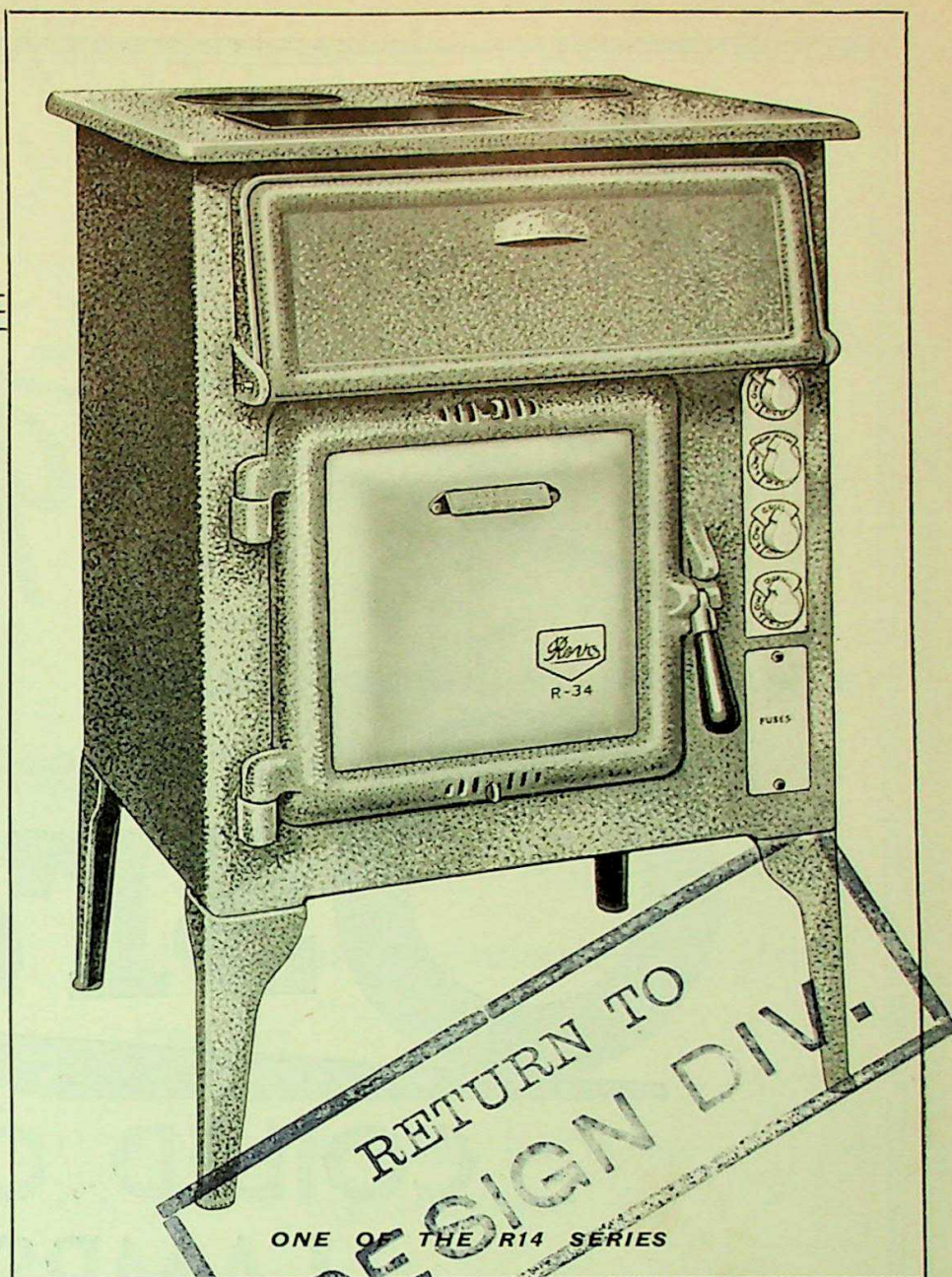
“Superite” cables are supplied in various finishes to suit varying installation conditions. We are always pleased to make recommendations regarding finishes.

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ELECTRIC
COOKER
to suit
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- HEAT-RESISTING ENAMEL
- INTERCHANGEABLE UNITS
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- LOOSE OVEN INTERIOR
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Only **REVO** Electric Cookers offer you such outstanding refinements. By reason of their sound construction and the adoption of most exclusive features, **REVO** Electric Cookers are undoubtedly far ahead of anything yet attempted.

REVO Electric Cookers are efficient in operation, reliable, and economical in use, and consequently answer the Engineers' call for an electric cooker for simple hire schemes.

REVO ever remembering how essential to the success of these schemes is the necessity for "No maintenance," has put every resource of its enormous cooker factory into the making of a range of electric cookers that will bring new consumers by their own achievements.

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*Trade is always
good*

If You Sell—
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**COILED COIL
LAMPS**

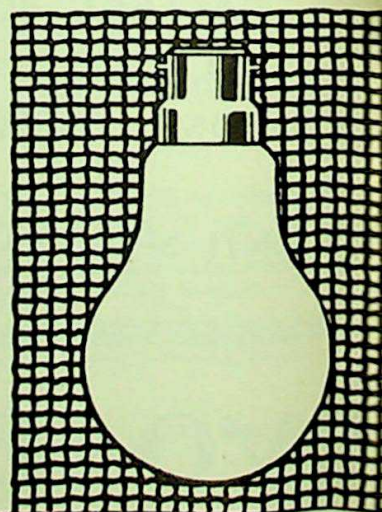
MADE IN ENGLAND BY THE G.E.C.

because:—

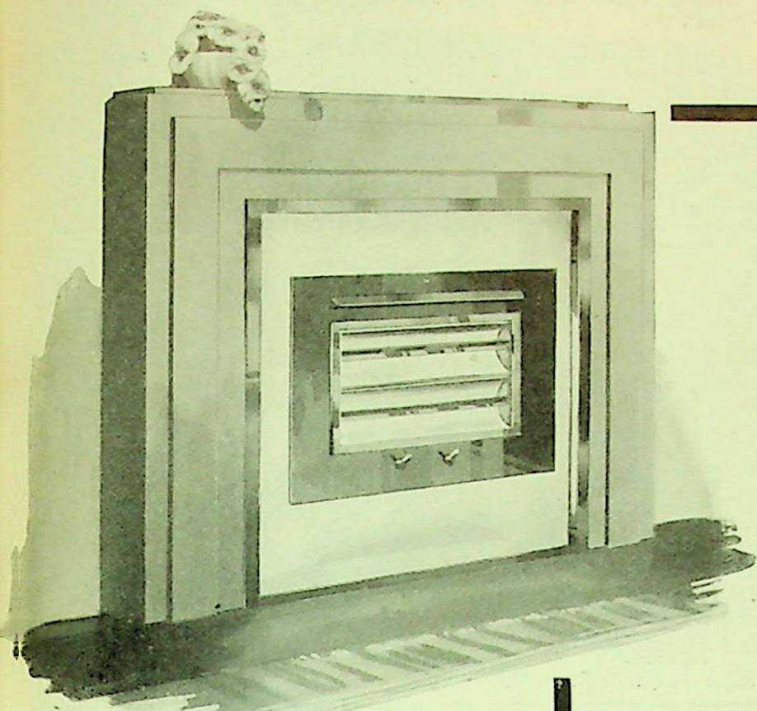
You will be selling the lamps the Public is asking for.

You will be selling the lamps which the Public knows give still more light at no extra cost for electricity.

You will be selling the lamps which will increase your reputation, your lamp sales, and your profit.



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Reg. Design

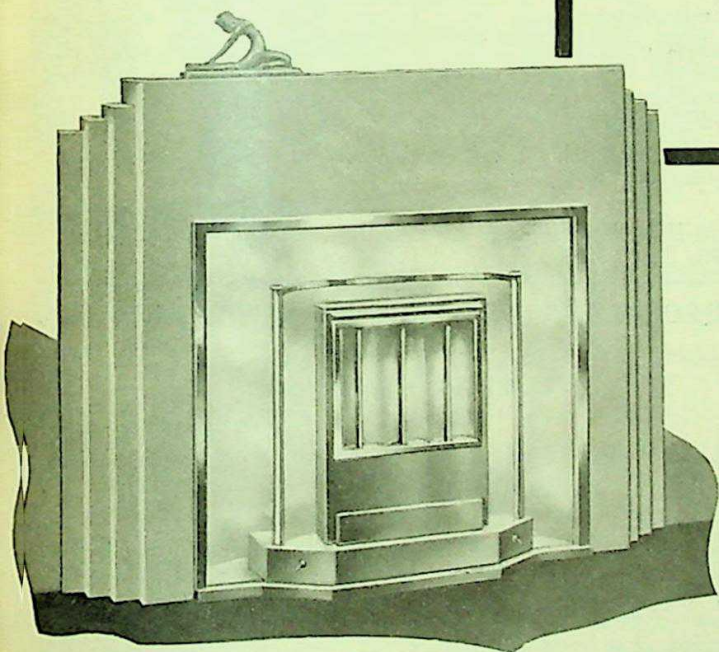


Designs that conform to modern ideas.

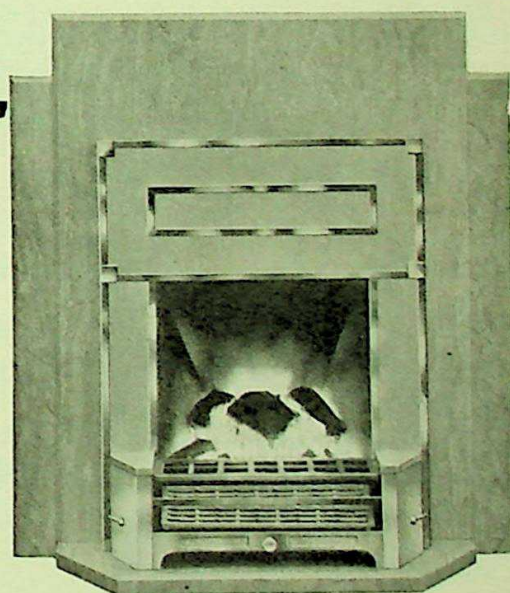
Prices adapted to every size of income.

Heating efficiency that is the result of 35 years' experience in Electrical Heating.

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and illustrated lists.*



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Reg. Design.



The **INSETTE SUITE**
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Sole Agents for Scotland: WOOD & CAIRNS, LTD., Edinburgh, Glasgow and Dundee.

OFFICIAL NOTICES.—Cont. from Sup. 26.**COUNTY BOROUGH OF SUNDERLAND.****Electricity Undertaking.****ELECTRICAL COOKING AND WATER HEATING APPARATUS.**

THE Corporation of Sunderland are prepared to receive tenders from *British Manufacturers* for the supply of the following items for the three years ending 31st October, 1938.

Specifications, General Conditions and Forms of Tender can be obtained by *actual makers only* upon written application to the General Manager, Electricity Offices, Dunning Street, Sunderland, upon payment of £1 deposit, which sum will be returnable upon receipt of a *bona-fide* tender.

- "A" COOKERS.
- "B" WATER HEATERS.
- "C" WASH BOILERS.
- "D" IRONS.

Tenders are to be made upon the forms provided with the specification (no other form of tender will be considered), and are to be enclosed in a plain sealed envelope endorsed "Tender for Electrical Apparatus," Sections "A," "B," "C," or "D," as required, addressed to the Town Clerk, Town Hall, Sunderland, and delivered at my office not later than first post on Monday, the 19th August, 1935.

Tenders from British makers only will be considered.

The Corporation do not bind themselves to accept the lowest or any tender.

G. S. McINTIRE,
Town Clerk.

Town Hall, Sunderland.
17th July, 1935.

4101

SHEFFIELD CORPORATION ELECTRICITY DEPARTMENT.**Contract No. 546.**

THE Electricity Committee are prepared to receive Tenders for six 300 kVA Three-phase Outdoor Type Oil Cooled Transformers.

Contractors desiring to submit Tenders may obtain Specification and Form of Tender at these Offices on making a deposit of One Guinea for each Specification, which sum will be refunded on receipt of a *bona fide* tender.

Any person or firm sending in a Tender will be required to comply with the Standing Orders of the Council relating to the "Prevention of Corruption" and to the standard rates of wages and proper hours and conditions of labour. A print of the Standing Orders may be obtained from the Department.

Tenders, which must be made out on the official Tender Form, to be delivered to the Town Clerk, Town Hall, Sheffield, 1, in a plain sealed envelope bearing the words "Tender for Transformers—Contract No. 546" not later than the first post on Thursday, 15th August, 1935. Tenders received after the time stipulated herein will not be considered.

The Committee do not bind themselves to accept the lowest or any tender.

JOHN R. STRUTHERS,
General Manager and Engineer.

Commercial Street,
Sheffield, 1.

4122

COUNTY BOROUGH OF ST. HELENS.**Electricity Department.**

TENDERS are invited from British Manufacturers for the supply and delivery of:—

Salt Glazed Stoneware Ducts and Cable Protection Tiles.

Copies of the Specification and Conditions of Contract and Form of Tender may be obtained from the Borough Electrical Engineer and Manager, Electricity Offices, Carlton Street, St. Helens, on payment of a deposit of £1 ls., which will be refunded to qualified firms on receipt of a *bona fide* tender. Additional copies of the Specification may be obtained at a cost of 5s. per copy, which will not be returnable.

No tender will be received except in a sealed envelope which must be clearly endorsed "Tender for Ducts" and must be delivered to the undersigned not later than the first post Monday, September 2nd, 1935.

The Council do not bind themselves to accept the lowest or any Tender.

W. H. POLLITT,
Town Clerk.

Town Hall,
St. Helens,
13th July, 1935.

4047

OFFICIAL NOTICES.—Continued.**EPSOM AND EWELL URBAN DISTRICT COUNCIL.****Electricity Department.**

TENDERS are invited for the supply, delivery, and erection of:—

- (1) One E.H.T. Truck Type Cubicle, and modifications to existing E.H.T. and L.T. D.C. Switchgear.
- (2) The supply and delivery of L.T. Cable.

Specifications and Tender Forms may be obtained from H. W. Watts, M.I.E.E., M.I.Mech.E., Electrical Engineer, Electricity Works, Epsom, on depositing the sum of £1 (One Pound), which amount will be refunded on receipt of a *bona-fide* Tender, and to the successful tenderer on completion of the Contract.

Additional copies of the Specifications may be had on payment of 5s. (Five Shillings) for each copy, which amount will not be returnable.

Sealed Tenders, on the prescribed forms, endorsed Tender for E.H.T. Switchgear, etc., or Tender for Low Tension Cable, must reach the undersigned not later than 10 a.m. on Thursday, 8th August, 1935. No name or mark indicating the sender must be placed on the outside of the envelope. No Tender not enclosed as stated will be received.

The Council does not bind itself to accept the lowest or any Tender.

P. E. WHITEOAK-COOPER,
Clerk and Solicitor.

Town Hall,
The Parade,
Epsom.
22nd July, 1935.

4125

COUNTY BOROUGH OF HASTINGS.**Electricity Department.**

TENDERS are invited from British Manufacturers for the supply and delivery of ONE SWITCH AND TRANSFORMER KIOSK for Baldslow Park Estate.

Specifications in duplicate, together with Form of Tender, can be obtained from A. J. Ryan, Esq., M.I.E.E., Borough Electrical Engineer, "Electric House," 12 and 13, York Buildings, Hastings.

Tenders enclosed in plain envelopes, sealed and endorsed "Transformer Kiosk—Electricity Department," must be delivered to the undersigned not later than 12 noon on Thursday, 8th August, 1935.

The Corporation do not undertake to accept the lowest or any tender.

D. W. JACKSON,
Town Clerk.
Town Hall, Hastings.
19th July, 1935.

4103

CORPORATION OF THE CITY OF GLASGOW.**Electricity Department.**

THE CORPORATION invite Tenders for

- (1) Turbo Alternator Plant
- (2) Boiler House Plant and Buildings.

Specification and form of tender may be obtained by written application to the General Manager of the Electricity Department, 75, Waterloo Street, Glasgow, C.2, on payment of a deposit of £2 2s. for each specification, which will be refunded on receipt of a *bona-fide* tender.

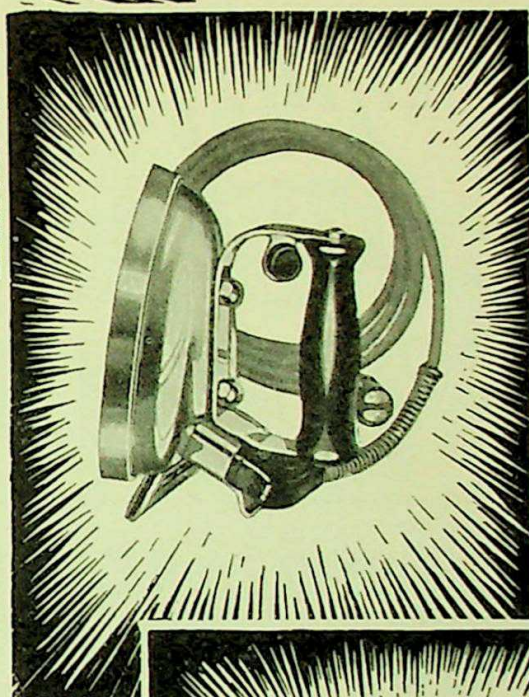
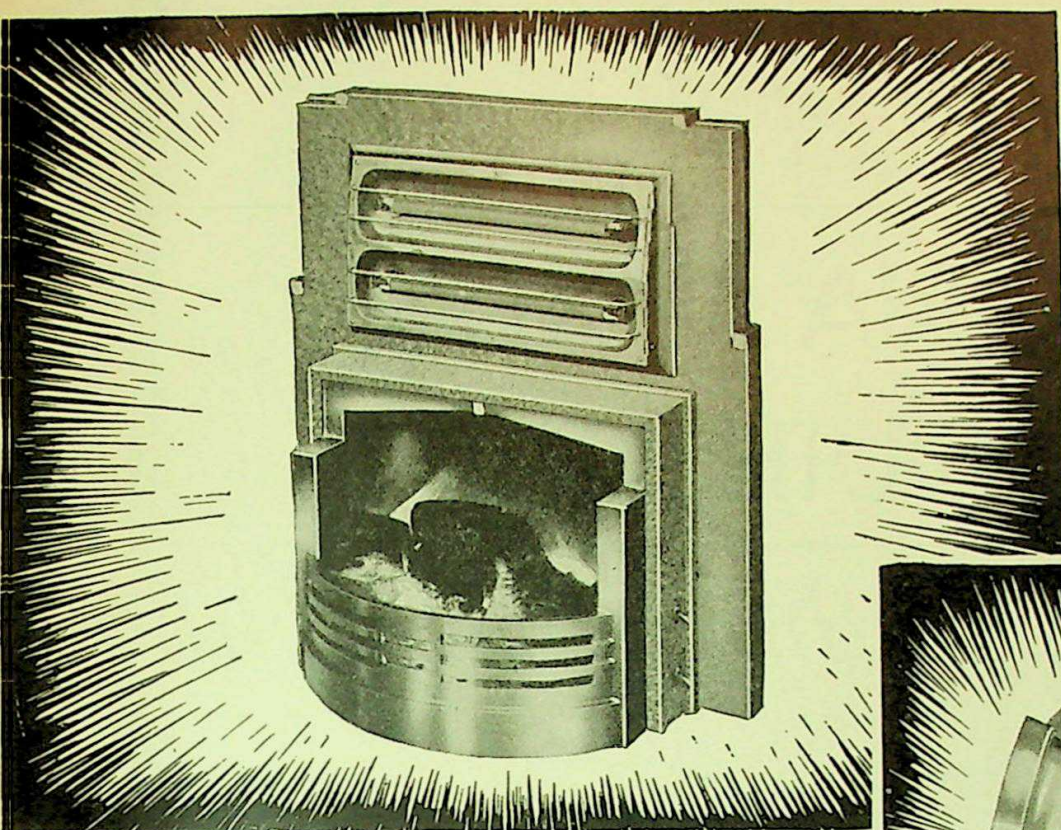
Tenders should be lodged with the subscriber in sealed envelope supplied by the Corporation not later than noon of Tuesday, 10th September.

The lowest or any tender may not be accepted.

D. STENHOUSE,
Town Clerk.
City Chambers,
Glasgow, C.2.

4109

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Largest Stock in the World
102, 103 & 104, Minorities, LONDON, E.C.



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appliances give such long, trouble-free service, that maintenance costs are reduced to the lowest possible level; in other words, their first cost is the last cost.

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your profit is not whittled down in service work. It stays with you, and along with the goodwill PREMIER appliances unquestionably carry, builds you a business worth having.

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HEATERS LIMITED,
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Telephone: BIRMINGHAM, VICTORIA 2104 (4 lines).
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London Office: 203 Bush House (Centre Block),
Aldwych, W.C.2. Telephone: Temple Bar 2903.



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By Appointment



Manufacturers
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The magnificent

ASTORIA CINEMA SOUTHEND

is equipped throughout with

OVER 4,000

ROYAL **"EDISWAN"** LAMPS
AND ARCHITECTURAL LAMPS

OVER 2,000

sections of special

CORNICE TROUGH REFLECTOR

and special lighting fittings, directional signs, etc.

OVER 50,000 Yards

OF

EDISON SWAN CABLE

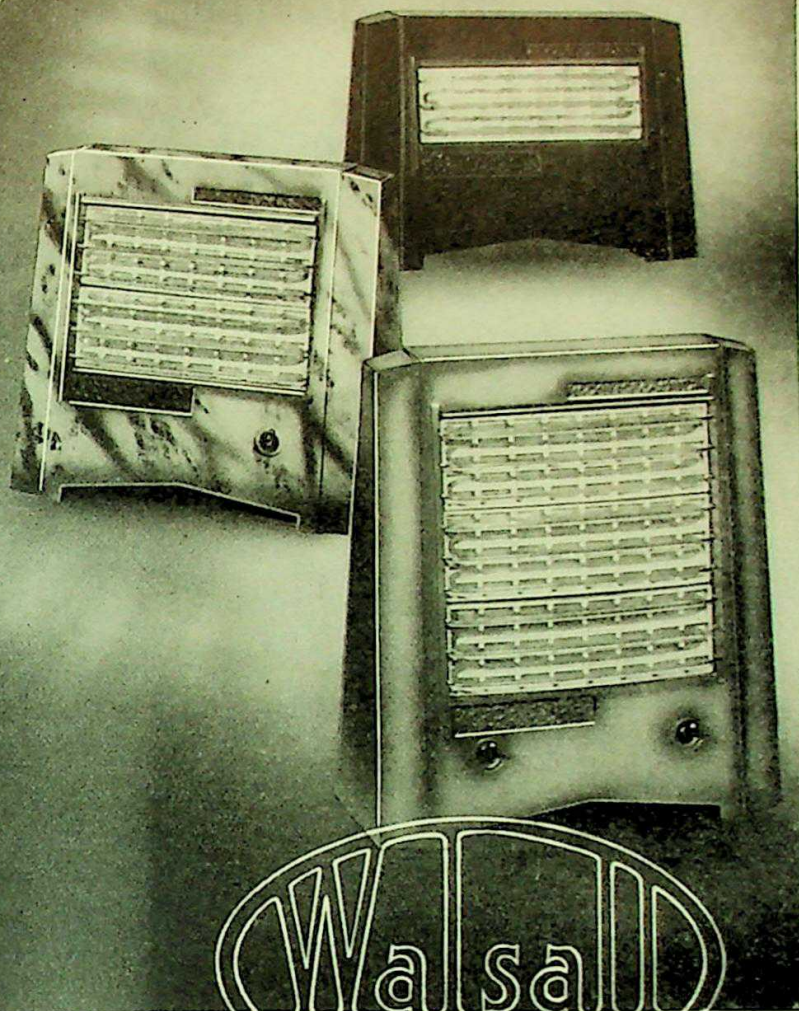
Royal "Ediswan" lamps of like quality are obtainable from all good electrical contractors. Specify also Edison Swan Cables for all wiring.

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Radiant Charm



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*Heat in its Element*

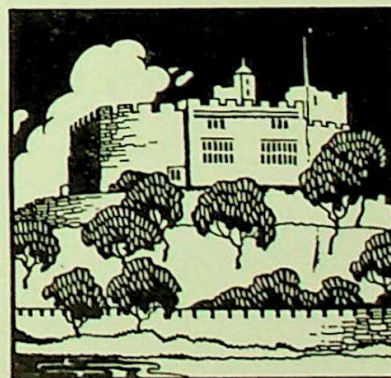
In an age when candour is a virtue—one no longer has to apologise for preferring the simple things of life.

The world is weary of complications, and to-day, simplicity in design is the keynote of Efficiency.

The rising generation—whether expressed in human character or Industrial Products is becoming more frank and candid . . . . . Honesty in values is something more than a "policy."

"WALGLOWS" are proud to rank amongst the simple things of life—

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Private Teleprinter Service between West Bromwich Works and London Office.

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SPECIALISTS





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| Electric Clocks .. .. .              | 19 pages | Cookers .. .. .                   | 8 pages  | Towel Rails .. .. .                      | 2 pages  |
| Irons .. .. .                        | 6 pages  | Hot Cupboards .. .. .             | 2 pages  | Vacuum Cleaners & Polishers .. .. .      | 9 pages  |
| Kettles .. .. .                      | 5 pages  | Cooker Control Units .. .. .      | 1 page   | Washers & Ironers .. .. .                | 3 pages  |
| Water Boilers & Steamers .. .. .     | 2 pages  | Flat Bottomed Utensils .. .. .    | 4 pages  | Wax Heaters, Glue & Tinning Pots .. .. . | 3 pages  |
| Coffee Percolators .. .. .           | 2 pages  | Warming Plates .. .. .            | 3 pages  | Soldering Irons .. .. .                  | 3 pages  |
| Universal Voltage Appliances .. .. . | 1 page   | Wash Boilers .. .. .              | 2 pages  | Cigarette Lighter .. .. .                | 1 page   |
| Toasters .. .. .                     | 4 pages  | Hot Water Urns .. .. .            | 1 page   | Hairdressing Equipment .. .. .           | 7 pages  |
| Waffle Bakers .. .. .                | 1 page   | Ice Cream Freezers .. .. .        | 2 pages  | Sewing Machine Motors .. .. .            | 1 page   |
| Kitchen Motors .. .. .               | 2 pages  | Refrigerators .. .. .             | 10 pages | Electro Medical Appliances .. .. .       | 15 pages |
| Boiling Rings & Plates .. .. .       | 4 pages  | Water Heaters & Softeners .. .. . | 27 pages | Connectors and Elements .. .. .          | 5 pages  |

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118-120 CHARING CROSS ROAD, LONDON, W.C.2.

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GUERNSEY: King's Road.

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An old world has already tired of wearisome complications, and we must thank the youth-spirit of the present age for its clean sweep of fustiness and its demand to the colourful and simpler things.

Radiant charm is not necessarily the exclusive prerogative of childhood, or flowers or wind-swept skies. Such a spirit can be caught up and expressed in the utilitarian things of life if one only has the courage to aim at such an ideal.

In "Walglow"—we have made an ideal a reality.

**WALSALL CONDUITS LIMITED**  
**EXCELSIOR WORKS - WEST BROMWICH - STAFFS**

'Phone: Tipton 1171.

'Grams: "Durability," 'Phone, W. Bromwich.

London Office & Stores - North End Road, West Kensington, W.14

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Private Teleprinter Service between West Bromwich Works and London Office.

**BRANCHES IN ALL LEADING PROVINCIAL CITIES.**

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Made in three sizes,  
 wide variety of finishes,  
 and for all voltages.  
 Price from 15/6. (sub.).

MADE BY THE  
 STEEL CONDUIT  
 SPECIALISTS





**OFFICIAL NOTICES.**

Advertisements under this display section are inserted at 14s. per inch (minimum one inch).

**COUNTY BOROUGH OF WARRINGTON.****Electricity Department.**

THE Electricity and Tramways Committee invite TENDERS for the following:—

1. 12 MONTHS' SUPPLY OF E.H.T. and L.T. PAPER and LEAD COVERED and OTHER CABLES.
2. 12 MONTHS' SUPPLY of EARTHENWARE CONDUITS.
3. 12 MONTHS' SUPPLY of REINFORCED CONCRETE CABLE PROTECTOR SLABS AND TILES.

Specifications and Forms of Tender can be obtained from the undersigned on payment of One Guinea for each specification, which will be returned on receipt of a bona-fide tender.

Five shillings will be charged for extra copy of each specification.

Cheques to be made payable to the Borough Treasurer, Warrington.

Tenders, addressed to the Chairman of the Electricity and Tramways Committee, Town Hall, Warrington, must be sealed with wax and endorsed "Tender for Cables," "Tender for Earthenware Conduits," or "Tender for Concrete Slabs and Tiles," as the case may be, and delivered not later than 12 o'clock noon on Monday, September 16th, 1935. The Committee do not bind themselves to accept the lowest or any tender.

F. V. L. MATHIAS, M.I.E.E.,

Borough Electrical and Tramways Engineer.

Electricity Works,  
Warrington.

4413

**DAGENHAM URBAN DISTRICT COUNCIL.****Riverside Works Extensions.****CONTRACT NO. 36—ELECTRICAL INSTALLATION.**

THE above Council invites tenders for indoor and outdoor (overhead and underground) wiring for lighting and power at the Council's Riverside Sewage Works, Rainham, Essex.

Plans, Specification and Form of Tender may be obtained from the Engineer and Surveyor on payment of a deposit of £5 5s., which will be returned on receipt of a bona fide tender.

Tenders must be returned to the undersigned in sealed envelopes (which must not bear any indication of the sender) not later than first post on Friday, 13th September, 1935.

The Council does not bind itself to accept the lowest or any tender.

F. W. ALLEN,  
Clerk of the Council.

Council Offices,  
Becontree Avenue,  
Dagenham, Essex.

23rd August, 1935.

4427

**CARDIFF RURAL DISTRICT COUNCIL.****Electricity Department.**

THE Council invite tenders for the supply and erection of Voltage Regulating and Phase-balancing Equipment in the Parish of Llanilterne, near Cardiff.

Specification, with Form of Tender, may be obtained from the Electrical Engineer and Manager, Park House, 20, Park Place, Cardiff, upon payment of a deposit of one guinea, which will be refunded (after a contract has been entered into) to those submitting a bona-fide Tender.

Additional copies of the Specification will be supplied at 5s. each (not returnable).

Tenders in plain sealed envelopes bearing no name or mark indicating the sender, and endorsed "Tender for Equipment, Llanilterne," are to be delivered to me by not later than noon on Tuesday, 10th September, 1935.

The Council do not bind themselves to accept the lowest or any Tender.

M. WARREN,  
Clerk to the Council.

20, Park Place, Cardiff.  
August, 1935.

4436

**OFFICIAL NOTICES.—Continued.****THE CITY AND COUNTY OF BRISTOL.****To Electric Heating Contractors.**

THE Baths Committee of the Corporation of Bristol is prepared to receive Tenders for the Electric Heating and Hot Water Services for Two proposed New Baths.

Full particulars and tender documents may be obtained from the undersigned on deposit of cheque value Two Guineas, returnable on receipt of a bona fide tender which must be delivered not later than first post on Wednesday, September 11th.

By Order,

H. M. WEBB, B.Sc., M.Inst.C.E.  
City Engineer and Surveyor

63, Queen Square,  
Bristol, 1.

**"BETTAFLEX"** } CABLES  
CORDS

LIGHTING — HEATING — POWER  
ASBESTOS & FLAME RESISTING  
DYNAMO AND STAGE  
SCREENED for RADIO  
ARMOURED  
COPPER BRAIDS  
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ROAN WORKS,  
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ENAMELLED  
H. C. COPPER

SILK & COTTON  
INSULATED MAGNET WIRES

IMMEDIATE STOCKS

WRITE FOR NEW LIST OF CABLES AND FLEXIBLES No. C & I

**"BREEZA" A.C. FANS**  
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**WE CANNOT MAKE**  
**ALL**  
**THE EXHAUST FANS**  
**BUT ONLY**  
**THE BEST**

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**FLEXIBLE METAL  
CONDUIT AND SOLID  
LESS COUPLING**

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All sizes from 1/4" to 4"

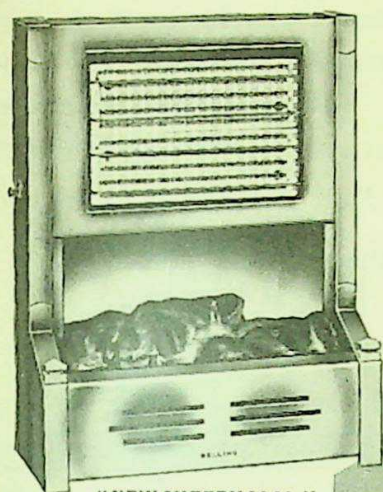
**THE DONOVAN ELECTRICAL CO.**  
46 & 47, Gt. Charles Street, B.1

PLACE YOUR INSTALLATION WORK WITH  
THE NATIONAL REGISTER OF ELECTRICAL  
INSTALLATION CONTRACTORS

**THE National Register is an independent**  
Institution representing all bodies connected  
Electrical Industry, and grants to contractors  
satisfying its requirements the right to use this sign.  
Particulars on application to the Secretary, 2, S. 1  
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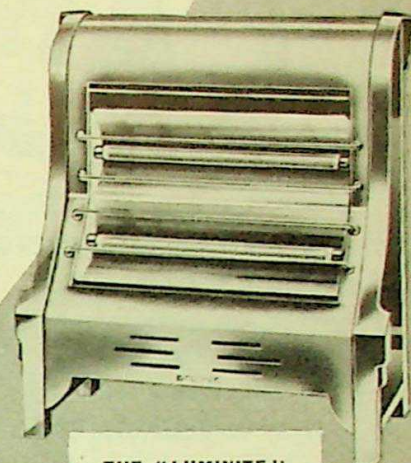
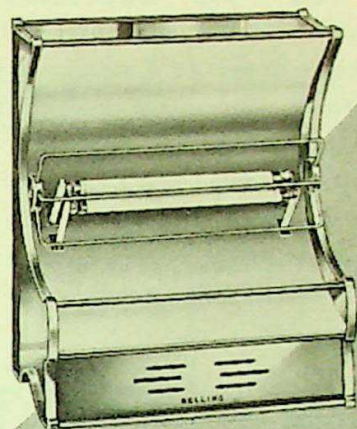


# The NEW "BELLING" FIRES for the 1935-6 season!



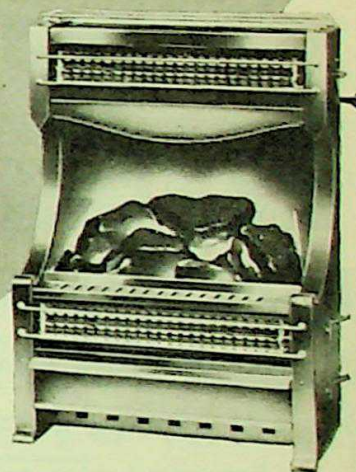
**"NEW CHEERY COAL"**  
2 kW. Size.  
List No. 362. (Firebar  
type) - £2.18.0  
List No. 364 (Projector  
type) - £3.5.0  
Note the prices!

**THE "TWIN-FOCUS"**  
2 kW. Size.  
List No. 345 - £3.5.0  
Scientifically designed  
to spread intense heat  
over a wide area.

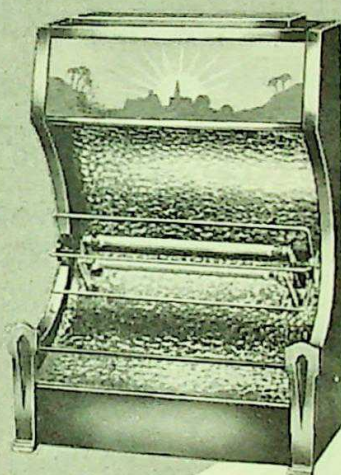


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Made principally of  
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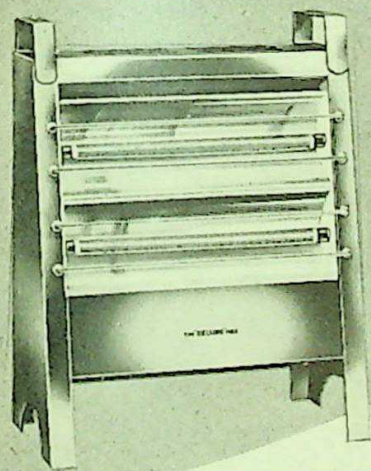
**"UTILITY COAL FIRE"**  
2 kW. Size.  
List No. 372 - £4.5.0  
Top bar is pivoted for  
boiling on top.



**THE "SUNSET"**  
2 kW. Size.  
List No. 346 - £3.15.0  
This new fire incor-  
porates a novel  
lighting effect.



**THE "DINKIE"**  
2 kW. Size.  
List No. 602 (Firebar  
type) 17/6. List No. 604  
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Electrically and  
mechanically sound,  
1 kW. sizes from 9/6.



The new "Belling" Fire Catalogue is now ready. If you have not had your copy please write for it to-day. "Belling" National advertising, Catalogues, Folders, Showcards and Window displays will help you again this season to increase your fire sales. We have huge stocks of fires and can guarantee good service and prompt delivery right throughout the season.

**STOCK, SHOW & SELL—**

# "BELLING"

**BELLING & CO. LTD., Head Office & Works, Bridge Works, Southbury Road, ENFIELD, MIDDLESEX.**

Telephones: Enfield 1123 and Enfield 2820 (6 lines).

London Showrooms: 313, Regent Street (1 min. north of Oxford Circus).

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# CARE OF CABLES

## HIGH VOLTAGE D.C. TESTING EQUIPMENT

Continuity of your Supply depends largely on the condition and safety of your cables. Regular testing by reliable equipment is essential. We suggest that you write for fullest particulars of Ferranti Testing gear.

**STANDARD RANGE UP TO 200 K.V. Mid-Point or one end earthed:** power consumption during test reduced to a minimum. Separate units for easy transport. Convenient assembly and connecting up. Test in accordance with Electricity Supply Regulations, 1934. Defective spots and incipient faults detected before breakdown. Faults can be burned out. With a high voltage bridge high resistance faults can be located. Periodic tests enable condition of cables to be recorded.

## FOR LOW TENSION CABLES 1,500 Volts D.C. EQUIPMENT

This equipment can be used on any 50 Cycle supply between 200 and 250 volts. Will pressure test cables with insulation resistance of 30,000 Ohms and upwards.

# FERRANTI

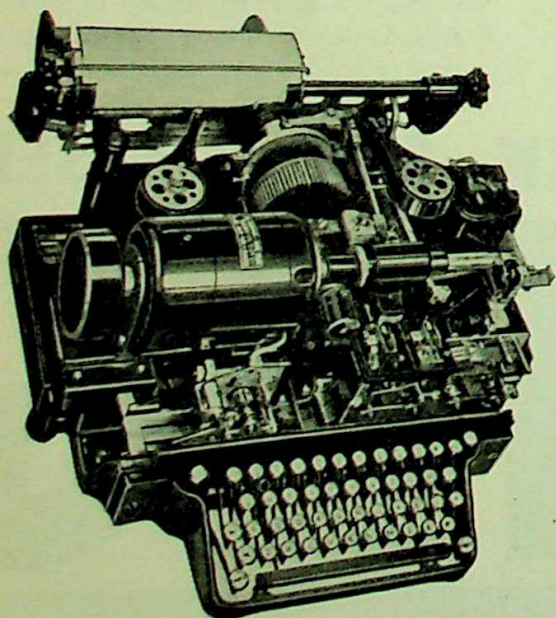
FERRANTI LTD., HOLLINWOOD, LANCs. London Office:-BUSH HOUSE, ALDWYCH, W.C. 2.

## MOTORS THAT ARE DIFFERENT

### BUILT BY SPECIALISTS

ONE OF A SERIES OF THE HIGH CLASS PRODUCTS OF

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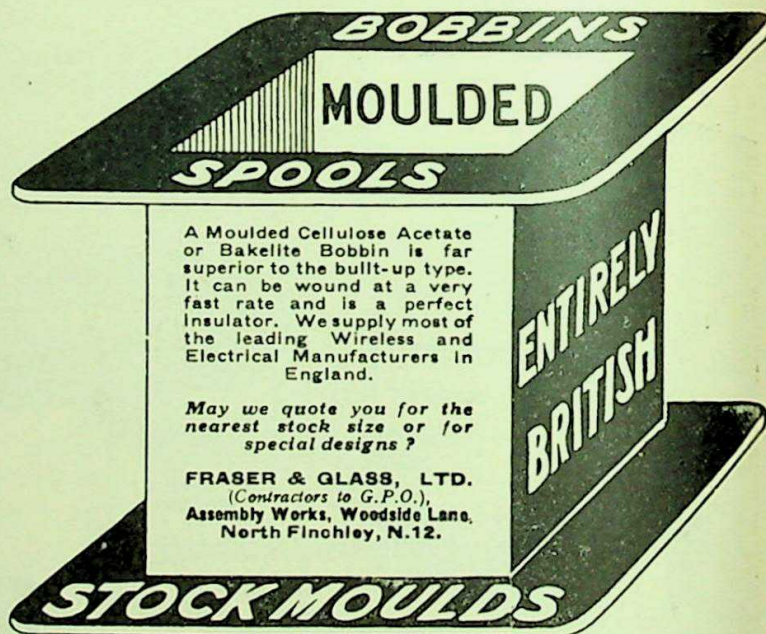
A Croydon Motor driving a Creed Teleprinter

**CROYDON ENGINEERING CO. LTD.**  
GLOUCESTER ROAD CROYDON

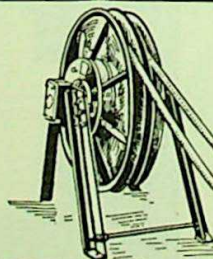
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Double  
Sheave  
Radial Pattern,  
Spring Controlled,  
Accommodating  
2-70ft. lengths  
of  $\frac{1}{4}$ " outside  
Diameter  
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For Trailing Cables to meet  
all Duties.

Dalyte Electrical Co.,  
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Teleps. Park, 3000-7 (two Lines)  
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# To SHOW is to SELL

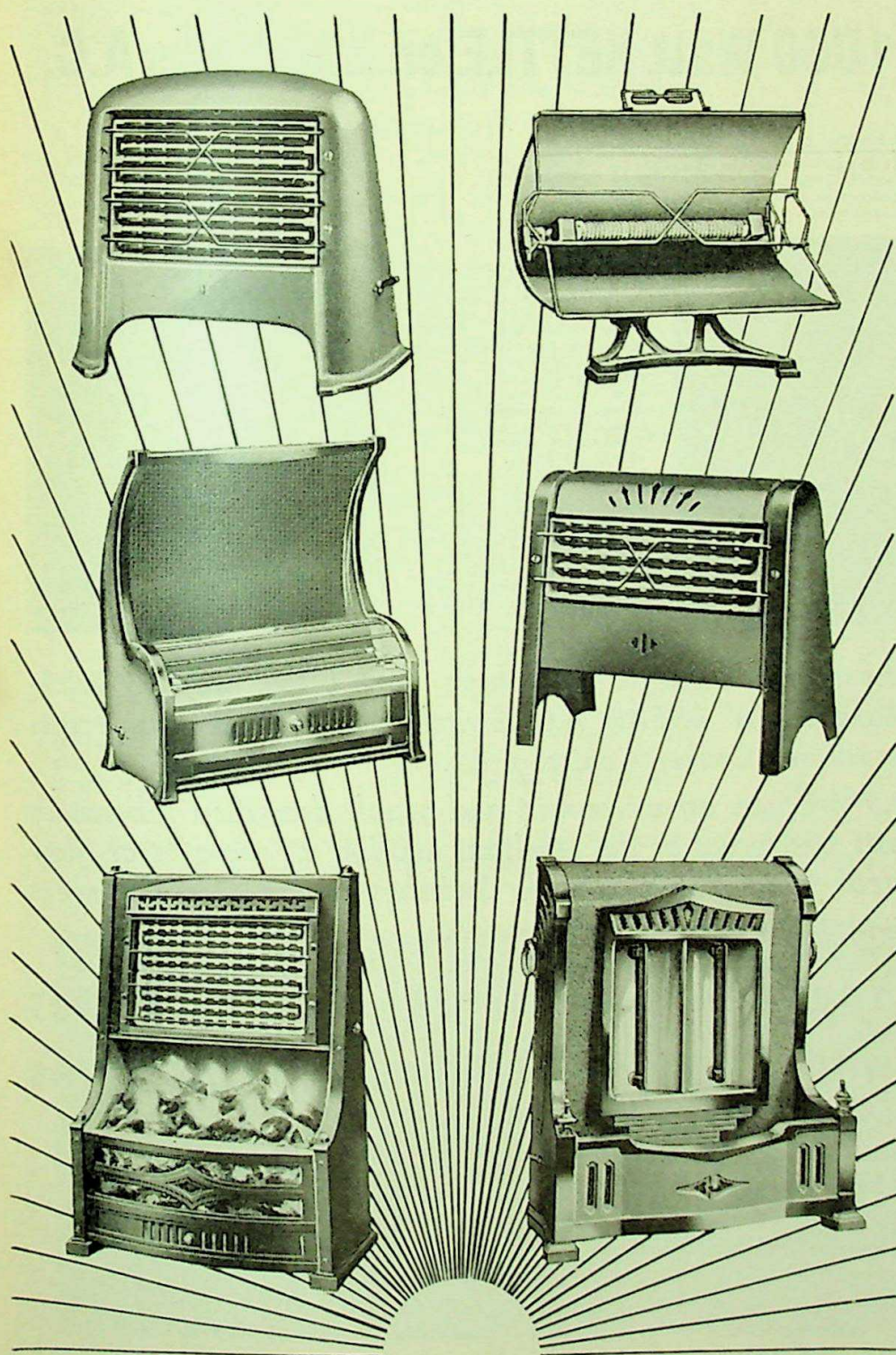


By Appointment Ironfounders  
to H.M. the King

## CARRON



### ELECTRIC FIRES



Because the name Carron has stood for nearly two hundred years as a guarantee of reliability, the public has complete confidence in the products of the Carron Foundry.

Women, in particular, are more than anxious to examine for themselves the extensive range of handsomely designed and beautifully finished Carron Electric Fires.

Your customers *want* to see Carron Electric Fires — *Let them*—and reap your profit from their enthusiasm.

Send to-day for free illustrated catalogue and for free advertising material.

**CARRON COMPANY  
WORKS,  
CARRON, FALKIRK**



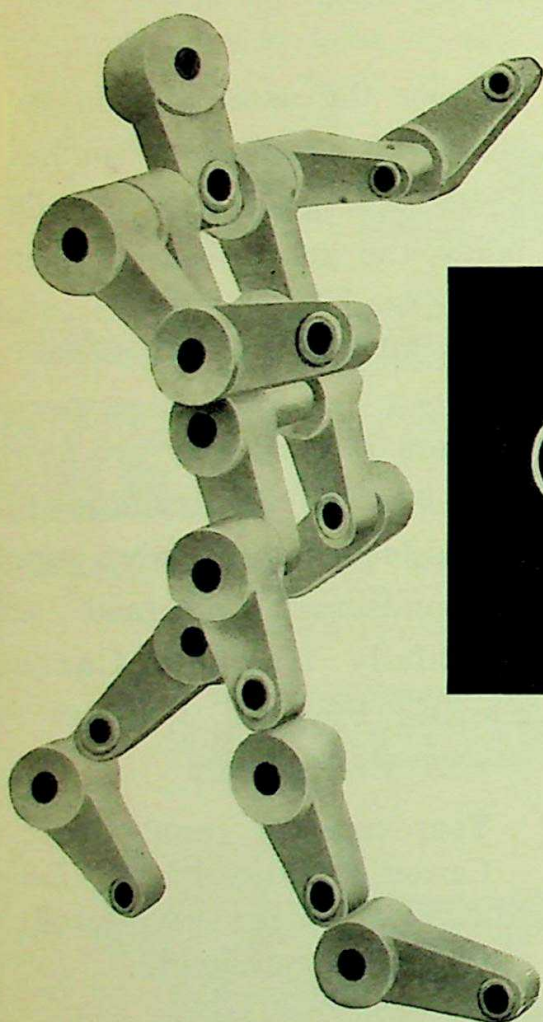
# LINK SWITCHES

## for A.C. circuits

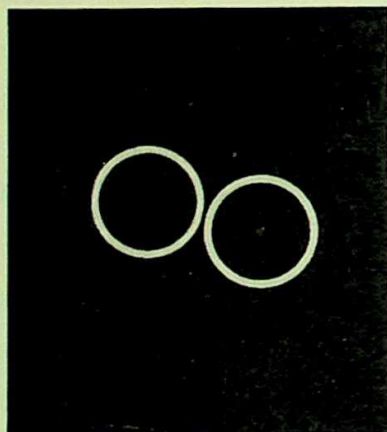
*"—so that for any given length of break (on A.C.) a quick break will not open a circuit any quicker than a slow break, but will cause more arcing"*

*Extract from BIRMINGHAM UNIVERSITY Elect. Eng. Dept. Test Reports*

### 1000 Watt KETTLE on 230 Volts A.C.



● **SLOW BREAK Single Pole.**  
Flash at contacts in the centre of circles is hardly perceptible AT EACH OPERATION.



● **QUICK BREAK Single Pole.**  
Severe flash occurs approximately ONCE IN THREE OPERATIONS.



The accompanying photographs show the intensity of an A.C. flash when breaking a kettle circuit, with a Single Pole Slow Break Switch and a Single Pole Quick Break Switch respectively. The flash of a slow break on such a circuit is so slight that it becomes merely a spark instead of the substantial arc of a Quick Break.

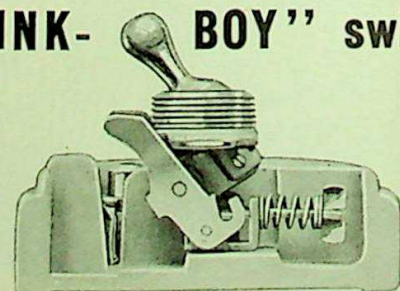
The nett result of the comparatively heavy flash of a Quick Break is that the contacts are pitted and burned on such a circuit many times (probably thousands of times) quicker than when a Slow Break is in operation.

*The switch used for the above slow break was a Quick-Make SLOW BREAK A.C. Switch as used on sub-circuits in various Cooker Control units.*

*Our previous advertisement and graph described laboratory tests and proof of the resultant heating at contacts of Slow Break and Quick Break Switches under circumstances approximating the above.*

**You can also break circuit slowly with TUCKER "LINK-BOY" switches**

**J.H. Tucker & CO. LTD.**  
KINGS RD. TELAC TYSELEY. BIRMINGHAM. II



Section view of "Link-Boy" Surface Switch.

Showrooms:  
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MAKERS OF THE FAMOUS "TITAN" (A754) LAMPHOLDER

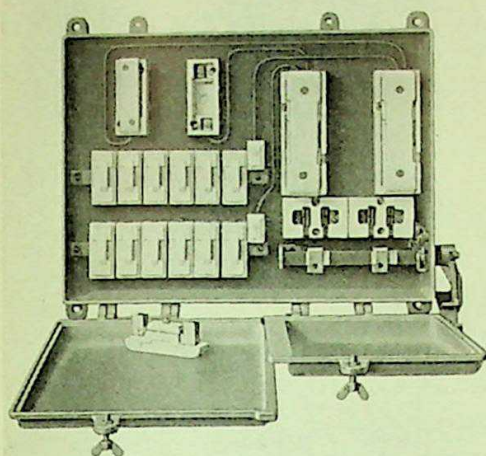


# New Apparatus and Devices

for Domestic, Cooking and Heating, Lighting, Power and Scientific Purposes

## A Multi-way Splitter

The tenth edition of the I.E.E. regulations for the electrical equipment of buildings stipulates that every splitter unit having more than three double-pole ways shall have the main fuses combined with the main switch controlling the sub-circuits. A new ironclad switch-fuse controlled multi-way splitter complying with these conditions is now available from SIEMENS ELECTRIC LAMPS & SUPPLIES, 38, Upper Thames Street, London, E.C.4. The main switch and fuses are protected by a cover interlocked with the switch handle, while a separate non-interlocked lid is provided for the fuses of the sub-circuits.



The Siemens multi-way splitter

The fuse banks are wired direct to the main fuses, the fuses themselves being so disposed as to permit wiring without removing them from the box and to give direct entry to the conduit. The capacity of the standard size is: main switch and fuses, 60 A, 650 V, cooker circuit fuses, 30 A, 250 V, and sub-circuit fuses, 15 A, 250 V.

## British National Fires

During a recent visit to the London offices of BRITISH NATIONAL ELECTRICS, LTD., Mossend, Lanarkshire, we were shown a large range of new electric fires of various types. The company has been very successful in its efforts to produce a fire with a realistic coal and flame effect.

In one model, the 2½-kW "Woodstock," there is a special arrangement in which the revolving "fan" over the lamp is shielded by a slotted "grid," the reflectors from this being thrown back on to a hammered reflector faced with sprayed gauze so that the impression gained when looking at the fire is one of sparks and smoke rising. The other three models in this series, the "Waverley," "Talisman," and "Portland," are given a similar finish, i.e., imitation Portland stone, a new and attractive finish which is washable, and have a loading of 2 kW.

To relieve the stone colour of the fire, and to introduce a little contrast, chromium and ebony have been used in these models, and also in the "Raystone," a striking, if rather severe, design having two 1-kW closely wound helix type fire-bars placed in front of chromium plated one-piece pressed copper reflectors.

A striking design of panel fire in chromium and black (No. F.39) and a 1-kW fire with a stainless steel reflector, a chromium-plated tubular handle and substantial black vitreous enamelled feet complete this range.

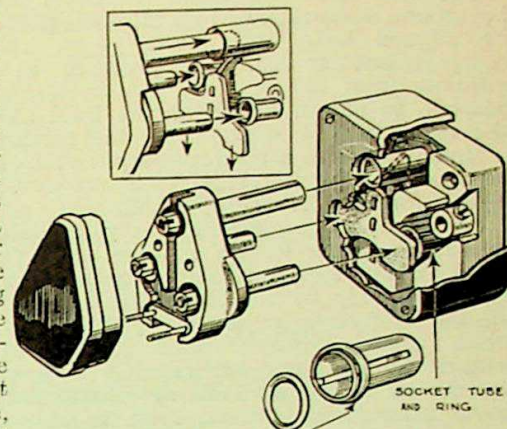
There is also a luxury fire known as the "Lothian," which in view of the price is likely to have a very limited market. This design is a delightful example of high-quality work with its polished ribbed reflector and side dogs. The element in this case is behind the "coal" and facing the reflector.

## A Safety Plug-socket

In order to ensure complete safety under all conditions and to comply with the I.E.E. Wiring Regulations a new type of "Anti-flash" plug-socket has been designed by M. K. ELEC-

TRIC, LTD., Wakefield Street, Edmonton, N.18, conforming with B.S.S. No. 546, instead of No. 372, Part 2, which is now obsolete.

Following the usual M.K. practice, screens are used to provide the "anti-flash" feature and also to act as a protection in the case of misuse by children, but the new type of screen is one more fool-proof under those conditions, since it takes the form of a sliding shutter operated by the plug. A spring keeps it over the socket until released by the earthing pin as it is pushed home, while, since it is of the flat shield type, it is impossible for it to be forced open by pencils, &c. There is no overhang as the plugs cannot be inserted singly into the current-carrying sockets, and thus the size of the socket base has been reduced—in the 15-A size it is about 2½ in. square.



The M.K. anti-flash socket

As with all M.K. equipment, the socket portion is made of vitreous porcelain, while the phosphor bronze sockets are fitted with a novel arrangement to ensure good contact with each pin of the plug. A double entrance ring is incorporated, consisting of an outer ring to prevent distortion of the socket and an inner spring ring which gives a permanent spring pressure. The plug is fitted with finger shields and a cord grip. The pins are of the "slotted" non-compressible type—that is, they cannot be compressed beyond the parallel position. Both 5 and 15-A sizes are available, but, at present, only the surface pattern is made.

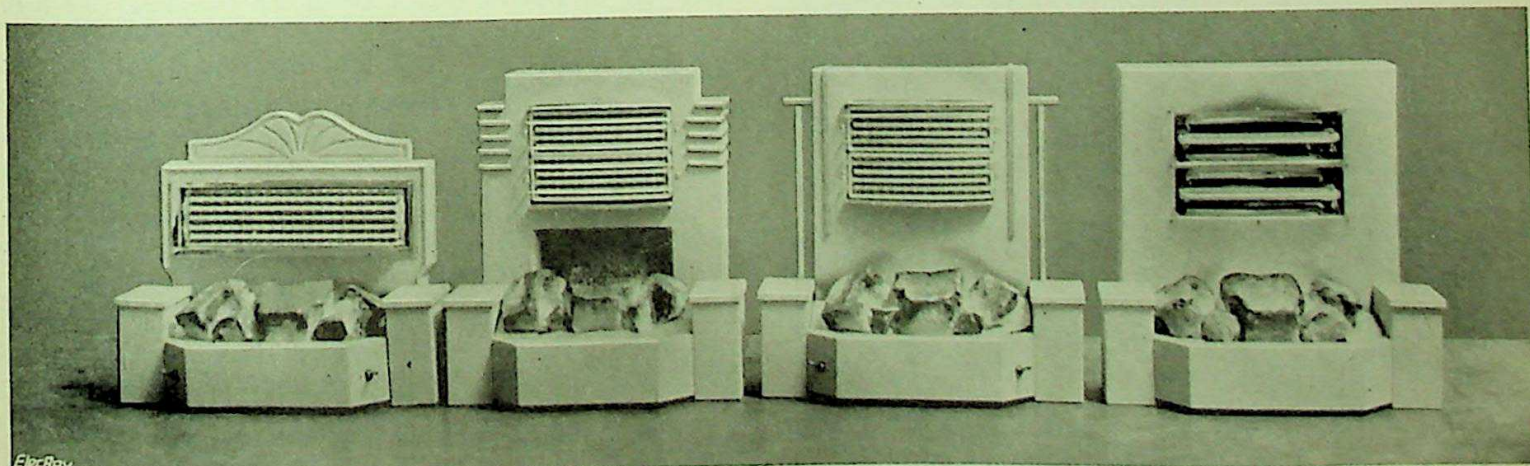
## A Photo-electric Reflection Meter

A portable photo-electric reflection meter has recently been introduced by SALFORD ELECTRICAL INSTRUMENTS, LTD., Salford, for the purpose of measuring the approximate reflecting power and colour properties of paper, porcelain and other ceramic substances, textiles, powders, paints, &c. Variations in surface texture of different samples of the same material and the transmission and absorption of glasses, liquids, and other materials can also be measured.

This reflection meter comprises a lamp with dry battery, rheostat and switch, a photo-electric cell of the rectifier type, and a portable micro-ammeter connected by flexible leads, the whole being housed in a wooden box, measuring 7½ in. by 5½ in. by 3½ in., and weighing less than 3 lb.; the lamp and photo-cell unit weighs only a few ounces. The photo-cell is annular in form, the central aperture being fitted with a small lamp bulb arranged so that no direct light falls on the cell. The whole unit is mounted in a small metal holder so that light is reflected on to the cell from the surface on which it is placed. In actual practice the holder is placed on a surface of known reflection factor, and the lamp current is adjusted by means of the rheostat until the pointer of the micro-ammeter indicates 100 per cent.

## Radio Testing Instruments

Two new introductions by the WESTON ELECTRICAL INSTRUMENT Co., LTD., Kingston By-Pass, Surbiton, are a selective analyser (model 665) and an all-wave super oscillator (692). The first mentioned is a device for locating faults in a radio receiver without unsoldering any connections. It is designed



Four new British National fires: the "Waverley," "Woodstock," "Talisman" and "Portland"



as two units, the fundamental instrument and the circuit selector. The instrument itself is a volt-ohm-milliammeter with ranges to cover all the values met in servicing radio receivers, and can be used with the circuit selector as a selective analyser, or, with the test prods provided, as an ordinary voltmeter, milliammeter, ohmmeter, output meter, and capacity meter. By using the circuit selector a receiver may be tested under actual working conditions.

The new all-wave super oscillator attenuates below one microvolt, so that all a.v.c. receivers can be aligned below the a.v.c. point. Individual compartment shielding is provided at all frequencies from 100 kc. to 22 megacycles, making it possible to obtain a low output level and reduce the residual field surrounding the oscillator.

Model 692 gives a uniform output over each band because its six individual coils are carefully designed for each frequency band.

The coil plugs into a heavy cast-aluminium shielded chamber with a snap-on cap. The maximum voltage supplied to the attenuator circuit is controlled only by the individual coil, and is not affected by pick-up from other parts of the circuit, while electromagnetic and electrostatic fields within the oscillator are reduced to a minimum because all switching leads are eliminated. There is no interaction between coils, as only one coil is in the coil compartment at a time.

The attenuator system presents a constant output impedance of 200 ohms, and attenuation is not produced by shorting this, as is sometimes the case. The system is a double combination of rotating units. High and low output terminals are provided, giving a range of from below 1 microvolt to 0.2 V. Modulation is supplied by means of a separate low-frequency oscillator, remaining fixed at approximately 50 per cent. at all frequencies.

A two-section condenser is provided, a small section for short-wave coils and a large section for the lower frequencies, giving more efficient circuits. The oscillator is battery-operated.

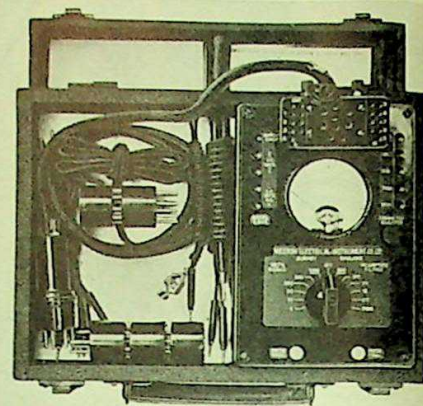
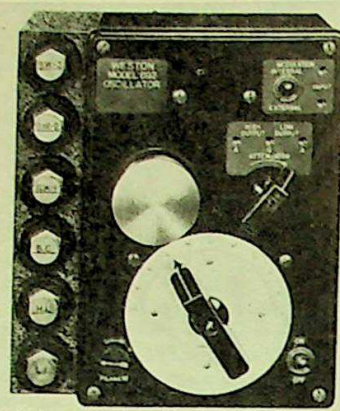
#### A Discharge Lamp Development

SIEMENS ELECTRIC LAMPS AND SUPPLIES, LTD., is marketing a new type of "Sieray" electric discharge lamp, developed in its Preston laboratory, and embodying two fundamental improvements; first-choke coils and condensers are eliminated, and secondly the light emitted is of a pleasing colour.

This lamp will be marketed under the name of "Sieray-Dual" and comprises a "Sieray" discharge lamp together with a tungsten filament, which is used to control the current in the discharge portion of the lamp, the normal tubular outer bulb of the "Sieray" discharge tube being expanded at its lower end to accommodate the filament so that the electric discharge lamp and its control are incorporated in a single unit. The tungsten filament operates at its normal efficiency and fills the dual functions of controlling the discharge and also

emitting light in which is present a considerable measure of red rays which implement the greenish blue light from the discharge tube.

As no choke is used in the circuit the condenser used in the ordinary electric discharge lamp circuits for power factor correction becomes unnecessary, and due to this fact no alterations to existing wiring are necessary as the new lamps can



The Weston oscillator and selective analyser

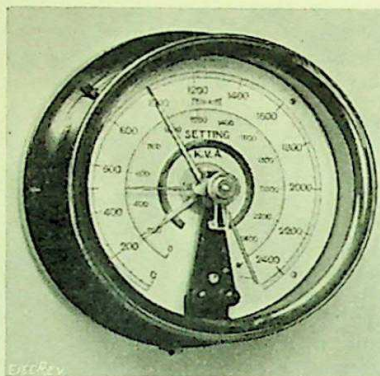
be screwed into normal goliath holders and operated direct from the a.c. supply mains.

#### A Maximum-demand Alarm Relay

An impulse-type of alarm relay has been introduced by MESSRS. FERRANTI, LTD., Hollinwood, Lancs, operable on a maximum-demand basis.

This instrument integrates impulses from a kWh or kVA meter. The alarm pointer can be adjusted to any demand figure, so that if during any five-minute interval the demand is such that its continuance for, say, thirty minutes would exceed the set value, contacts on the setting and driving pointers are closed and a visible or audible alarm device is operated.

The five-minute time control is effected by means of a Ferranti self-starting synchronous motor. The



The Ferranti m.d. alarm relay

overall dimensions of the instrument illustrated are 9½ in. diameter by 5⅞ in. deep.

## Laying 33-kV Submarine Cable at Barnstaple

RECENTLY the Contracts Department of Callender's Cable & Construction Co., Ltd., undertook on behalf of the Bideford and District Electric Supply Co., Ltd., the provision of a 33-kV main from Bideford to Braunton, in North Devon. The whole of this work was carried out by means of an overhead line with the exception of the section across the River Taw. To cross the river on the route of the overhead line necessitated 800 yd. of 3-core l.s.d.w.a. 0.06 sq. in. submarine cable.

This is said to be the greatest single length of 33-kV cable ever supplied.

Before the cable could be drawn into position, not only had the site on both river banks to be made ready, but the cable drum had to be delivered from Belvedere to Barnstaple. It was nearly 12 ft.



Putting 33-kV cable in position across the River Taw

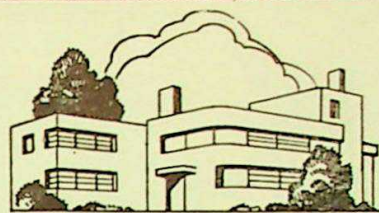
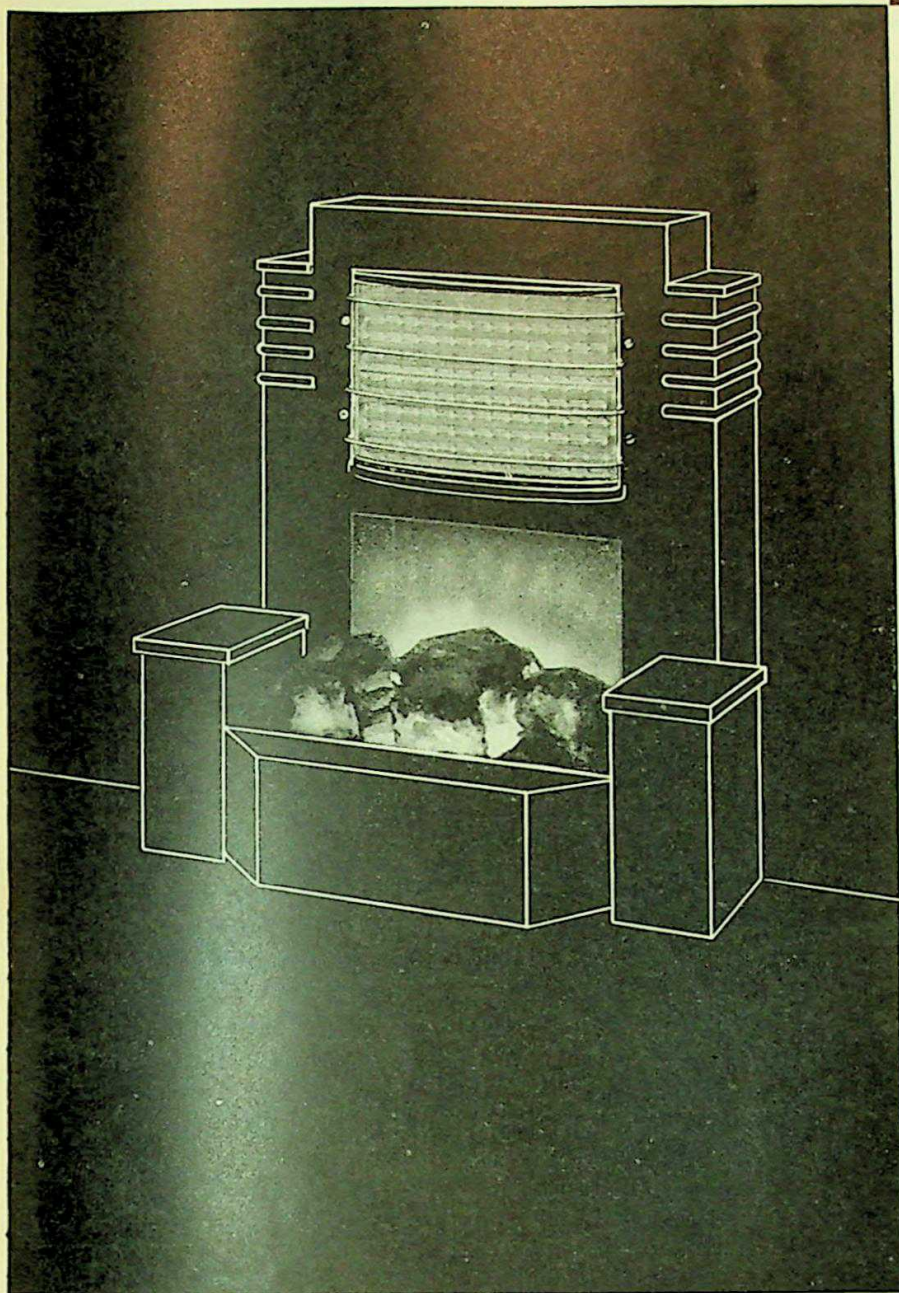
in diameter and with the cable in place weighed 21 tons. This huge load was hauled by road on a special carrier via Reading, Salisbury, Yeovil, Chard, Exeter, Tiverton and South Molton.

The drum was transported to the north bank of the river three miles downstream from Barnstaple, but as no mechanical handling appliances were available at that spot the cable had to be paid off the drum direct from the carrier. Before reaching water level it was taken down through a 30-ft. shaft, then under the railway and road in ducts set in concrete, across the foreshore in a trench previously cut in the rock by pneumatic drills and then pulled across the river, being finally laid in the sandy bed of the river along a trench excavated at low tide; on the southern side of the river the cable lies in another trench across the foreshore. At both sides connections have been made direct on to the terminal poles of the 33-kV overhead line by means of special terminal connection boxes.

Elaborate precautions had to be taken in laying the cable owing to the extremely rocky nature of the estuary foreshore and also due to the strong and variable tides which held up the work at periodic intervals. The fact that this large weight of cable was successfully pulled across the river bed under these conditions without the slightest damage or delay reflects great credit upon the engineers and staff concerned. The completion of this contract was carried out well within the specified time.

Apart from the usual technical and practical considerations involved, the movement across the south and west of England of this very large drum caused considerable interest and a complete series of photographic records of the work has been obtained. The accompanying illustration gives a general view from the north bank of the Taw and, in addition to the drum and cable stretching across the river bed, illustrates one of the terminal poles of the overhead line.





## THE BEAUTY OF MODERN *Architecture*

Ever thought how much the simplicity of the straight line contributes? How gradually and politely it is intruding into decorative schemes?

The new Season's BRITISH NATIONAL Fires make a really novel introduction. Electric Fires that bring the modernity of exterior building design *inside* the building.

And a point that Contractors and Customers alike will appreciate—instead of a bewildering array of finishes, a standard finish that harmonises with EVERY type of room decoration.

Simpler stocking—less risk of having surplus stocks left over—speedier sales.

# BRITISH NATIONAL

THE NEW BRITISH NATIONAL COAL-FIRE EFFECT is obtained by an entirely new principle that gives a RISING smoke effect and (in the case of one model) an appearance of flying red-hot particles of soot. This new Coal-fire effect is an advance of anything yet attempted and provides the nearest equivalent of a REAL coal fire.

**BRITISH NATIONAL ELECTRICS**  
*Limited*

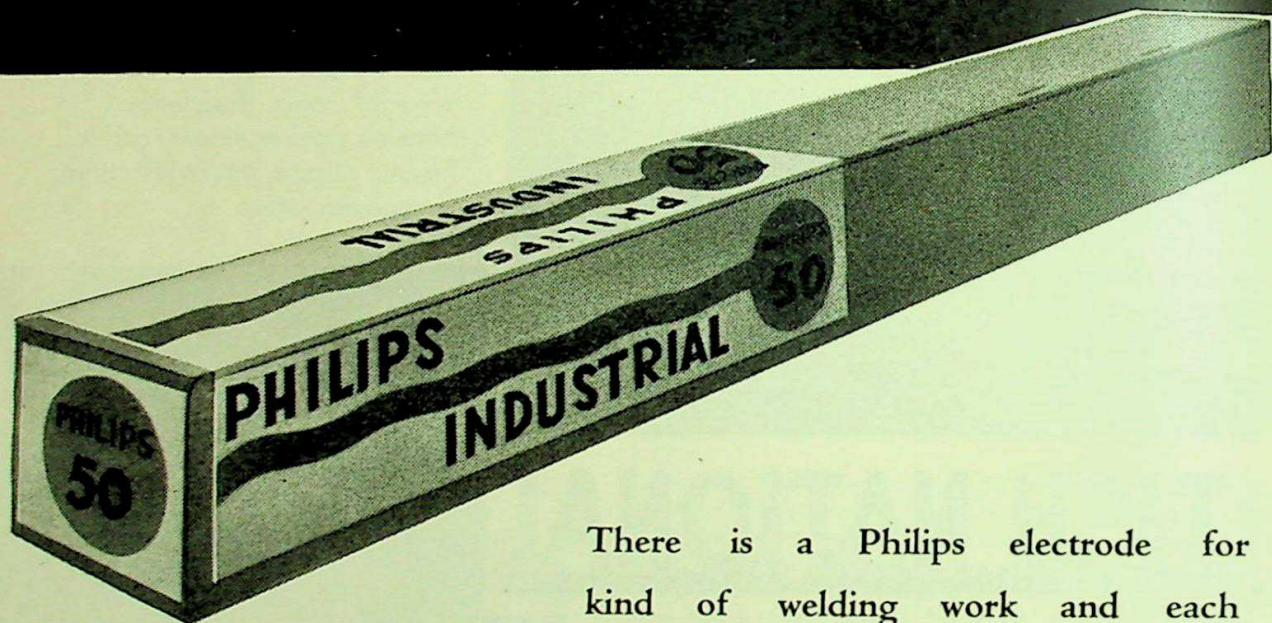
NEWARTHILL LANARKSHIRE





Then use Philips electrodes. They are known for better welding, higher speeds and reduced costs. They are rigorously tested to ensure high quality work.

If I could reduce my welding costs, Mr. Weldfast, I would be sure of getting this contract.



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There is a Philips electrode for every kind of welding work and each brand is specially designed for exactly suiting the desired purpose. When using Philips electrodes you will be sure to get the right electrode for your special object.

# PHILIPS ELECTRODES

FOR BETTER WELDING AND HIGHER SPEEDS

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**Australia:** Philips Lamps (Australasia) Ltd., Sydney, N.S.W.

**South Africa:** South African Philips (Pty.) Ltd. United Buildings, Fox Street, Johannesburg.

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By Appointment  
IRONFOUNDERS TO H.M. THE KING.

# CARRON

## ELECTRIC COOKING APPARATUS

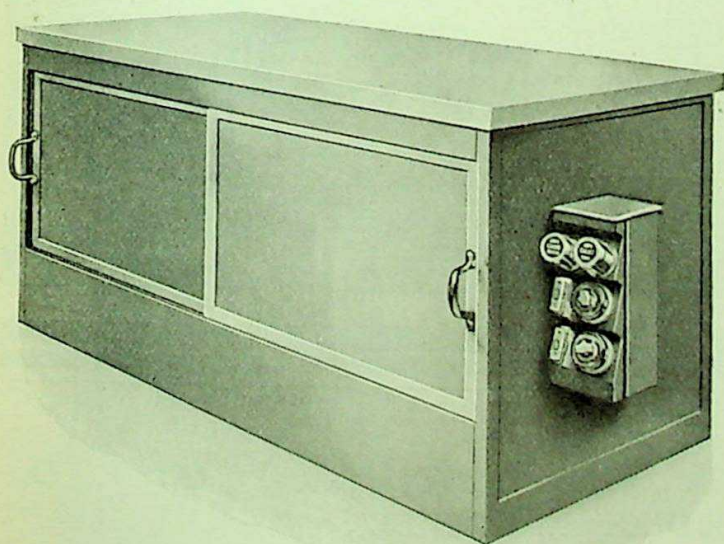
CARRON COMPANY specialise in this important branch of their business, and with their unique organisation and manufacturing facilities are in a position to cope with any demand for this class of goods.

*Drawings and Estimates Gratis. Electrical Cooking Apparatus Catalogue (No. 24 M) Post Free.*

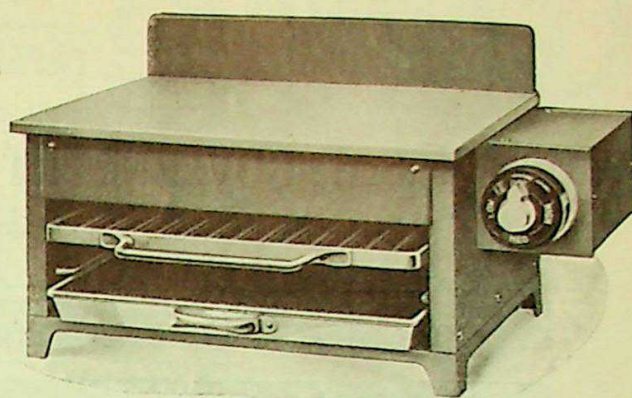
### CARRON COMPANY

WORKS - - - CARRON, FALKIRK

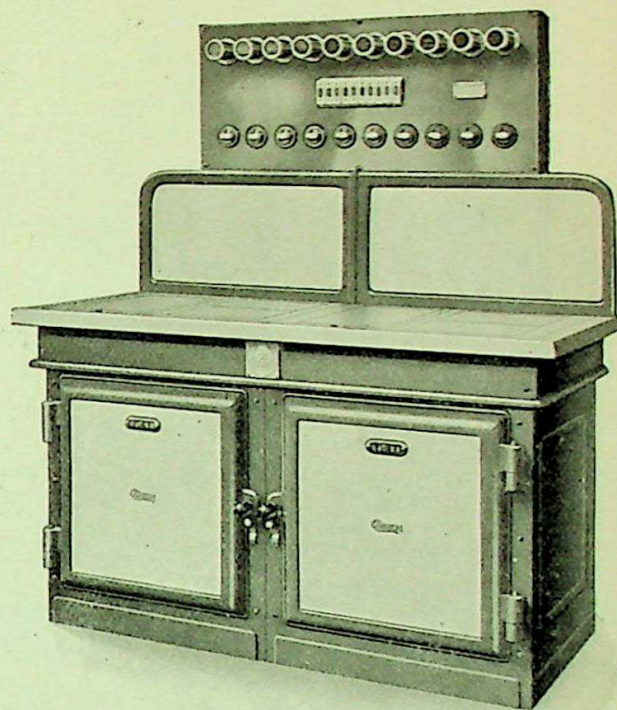
LONDON - - - - 15, UPPER THAMES STREET, E.C.4.  
LIVERPOOL - GLASGOW - EDINBURGH - BRISTOL



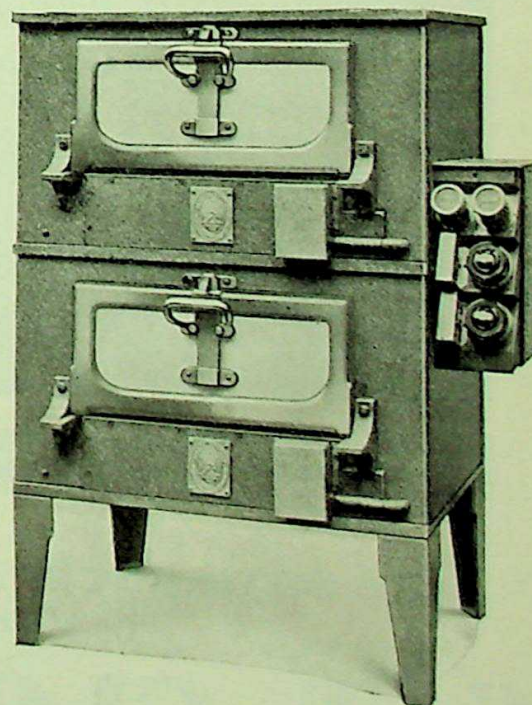
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No. 440. Electric Toaster.



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# To SHOW is to SELL

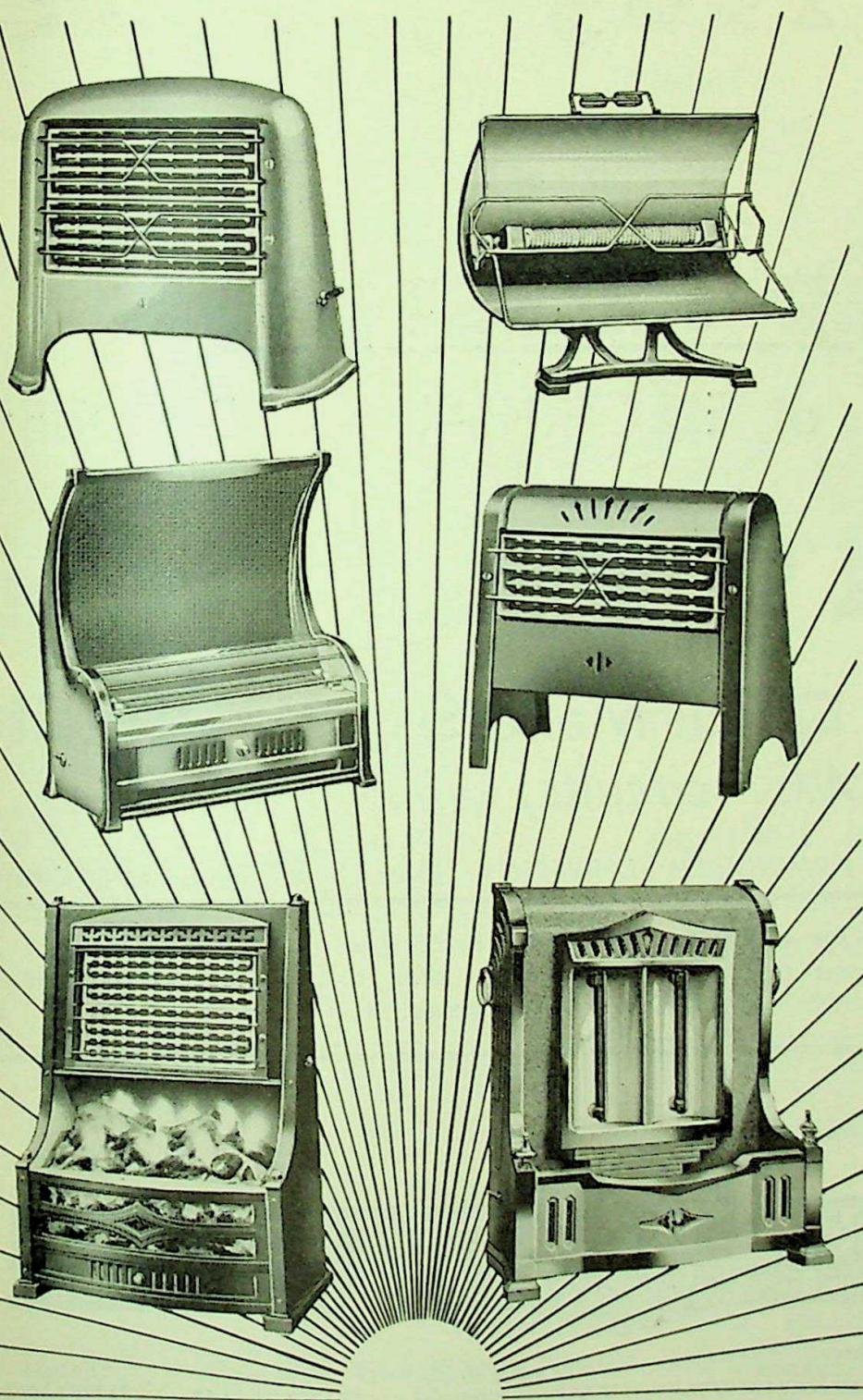


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### ELECTRIC FIRES



Because the name Carron has stood for nearly two hundred years as a guarantee of reliability, the public has complete confidence in the products of the Carron Foundry.

Women, in particular, are more than anxious to examine for themselves the extensive range of handsomely designed and beautifully finished Carron Electric Fires.

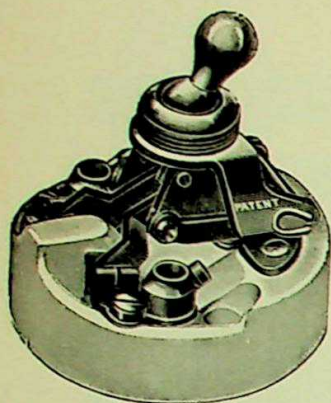
Your customers *want* to see Carron Electric Fires — *Let them*—and reap your profit from their enthusiasm.

Send to-day for free illustrated catalogue and for free advertising material.

**CARRON COMPANY  
WORKS,  
CARRON, FALKIRK**

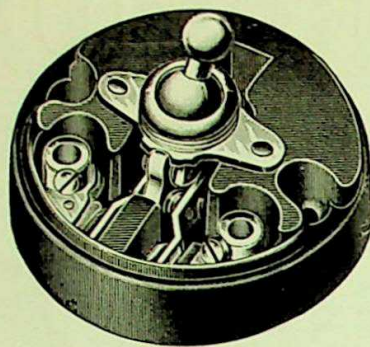


# MILESTONES



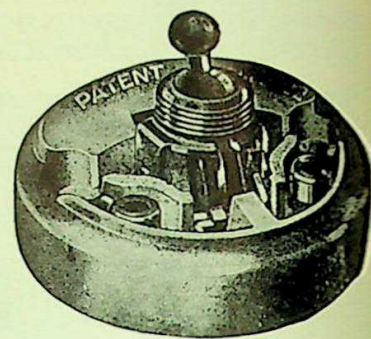
## 1893

Tucker  
Toggle Action  
Patent 18019-1893



## 1905

Tucker  
Silent Link type  
Slow Make



## 1914

Tucker  
Quick Make & Break  
Patent 23444-1913

## ANOTHER MILESTONE

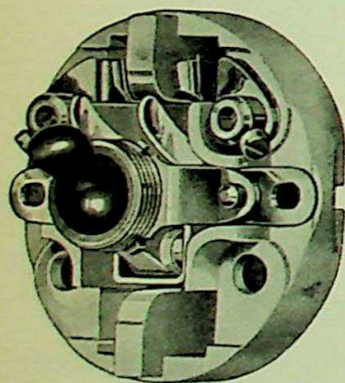
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## 1935

**Tucker Quick Make-SLOW BREAK**  
(for A.C. circuits) *Various Patents Pending*

*Extract from BIRMINGHAM UNIVERSITY Elect. Eng. Dept. Test Report:*

*"—so that for any given length of break (on A.C.) a quick break will not open a circuit any quicker than a slow break, but will cause more 'arcing.'"*



5 Amp. Single Pole A.C.  
Slow Break Kettle Switch.

Write for Folder S12 containing comparisons of above Slow Break Switch and Quick Break Switch on 1,000 watt 230 volts A.C. Kettle circuit.

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*Regd. Design.  
PATENTS PENDING.*

The "coal" in the Glenberry gives a wonderful effect never before equalled in this type of fire.

You are specially invited to visit Touchbutton House, where this and other new Magicoal-"Plus" models are now being demonstrated.

*New illustrated catalogue sent upon request.*

## BERRY'S ELECTRIC LTD.

TOUCHBUTTON HOUSE,

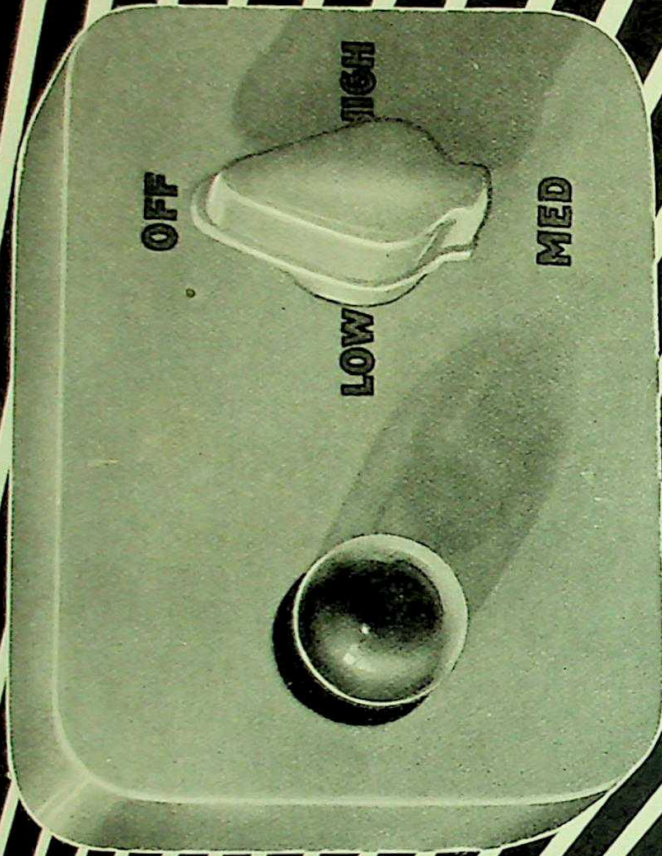
85 & 86, NEWMAN STREET, OXFORD STREET, LONDON, W.1.

*Telephone: Museum 6800 (9 lines).*

Also BIRMINGHAM, MANCHESTER & NEWCASTLE-ON-TYNE.

Sole Agents for Scotland: WOOD & CAIRNS, LTD., EDINBURGH, GLASGOW, DUNDEE.



**NEW****ARROW**

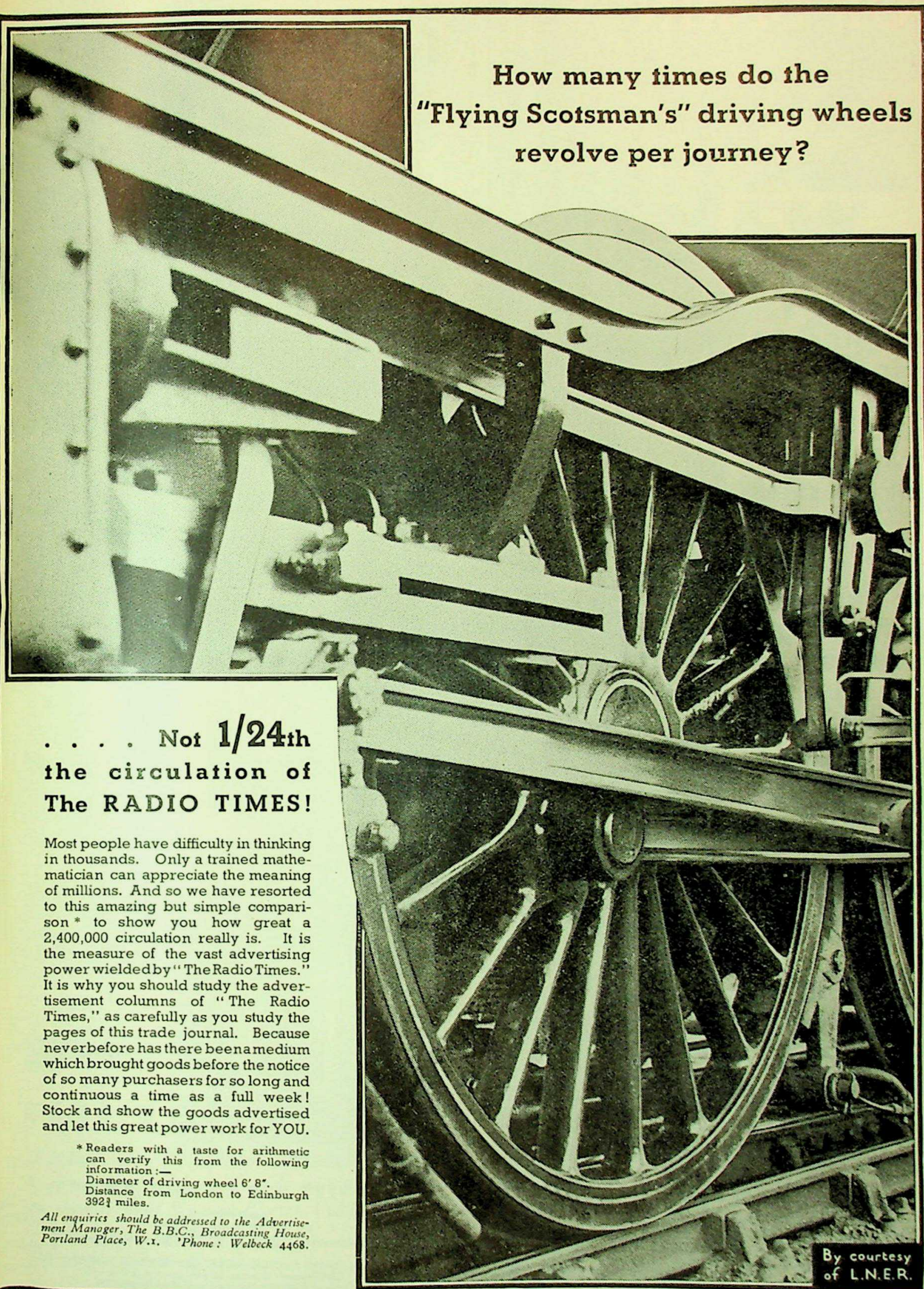
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Pressed steel box, white cellulose finish fitted with single heat or three heat switch and pilot light. Available with 15 or 20 ampere switch. Solid robust construction.

**ARROW ELECTRIC SWITCHES, LTD.**  
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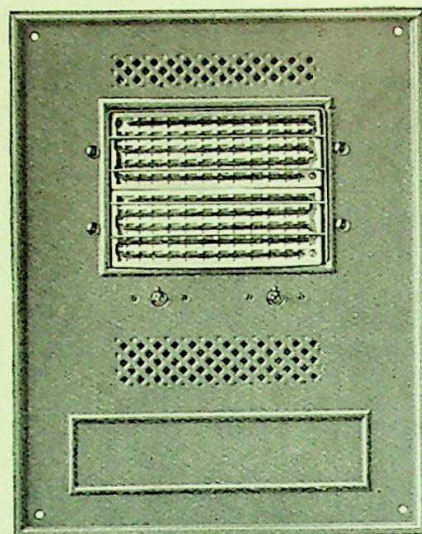
TERRY

## NEW

# XCEL

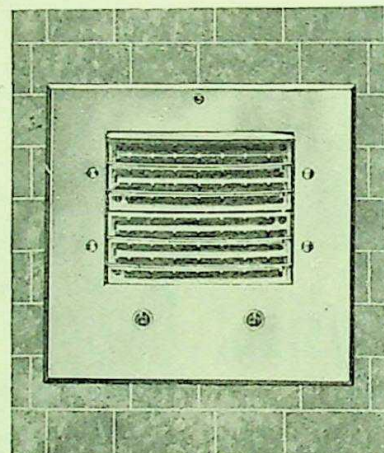
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## INSET FIRES for PRICE and PREFERENCE

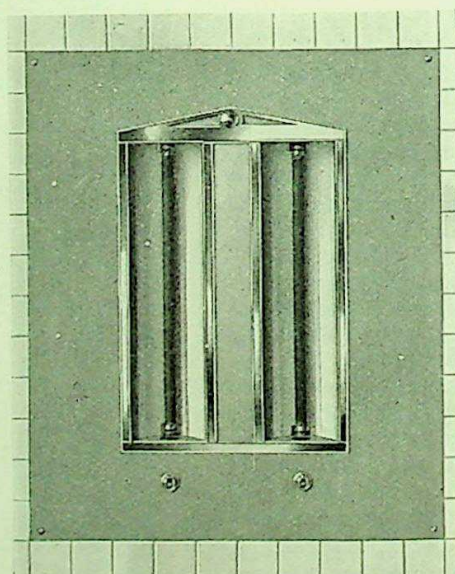


H 7364.  
CAST PANEL INSET  
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Standard finishes (Vitreous Enamel).  
Green, Buff or Grey.  
Prices : With Single-pole  
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The 'SUNNINGDALE' Price £3.17.6



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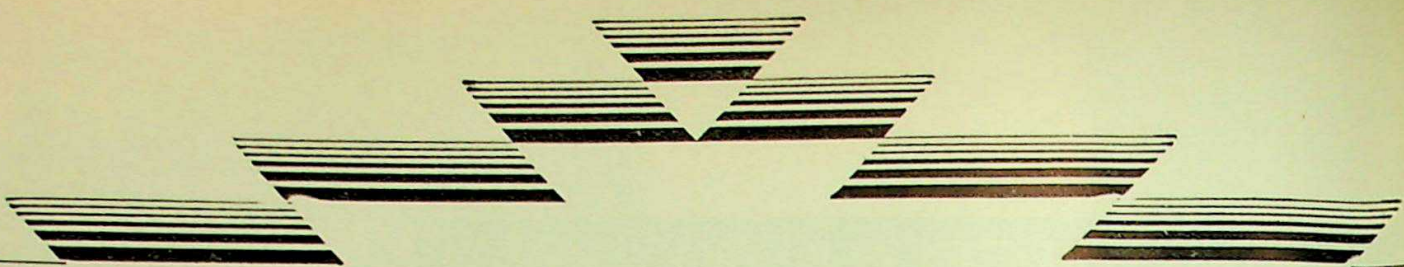
This attractive new reflector pattern fire has a cosy effect of burning, flickering coals. It is typical of the wonderful value in the 1935-6 Creda range. With new models and old and tried favourites, with new finishes and a superb full-colour list, Creda have set out to improve on last year's record season. Let Creda help **you** to a record season, too.

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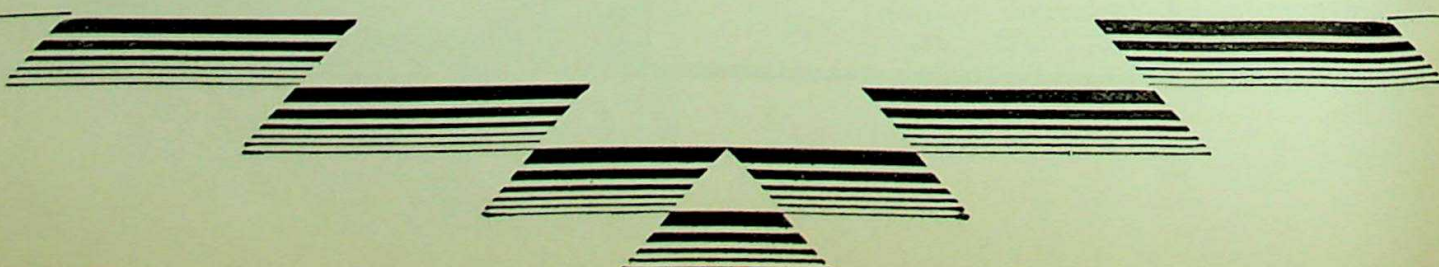
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## **FINE MOULDINGS**

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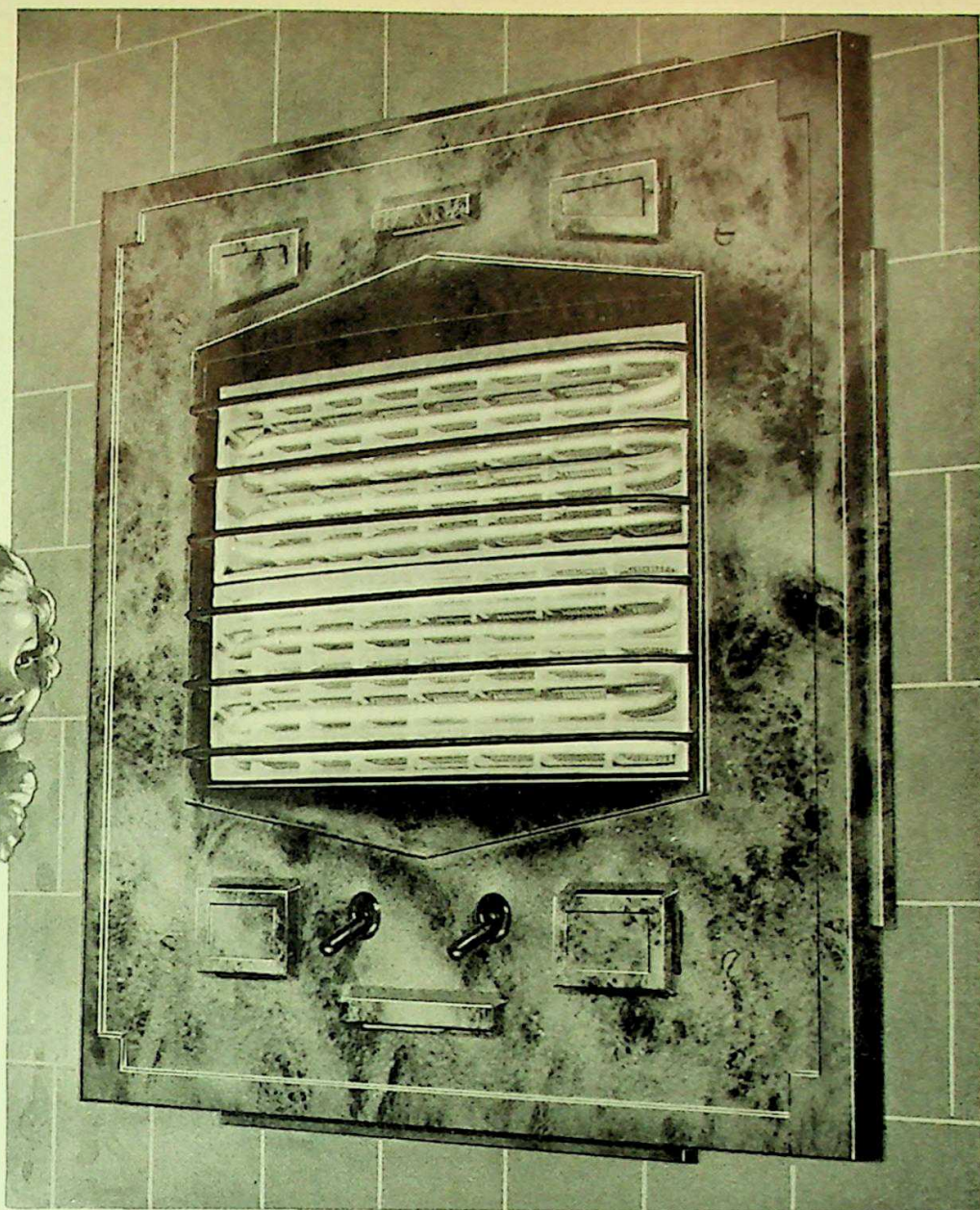
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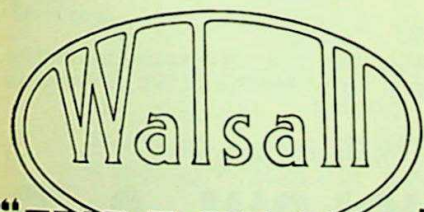
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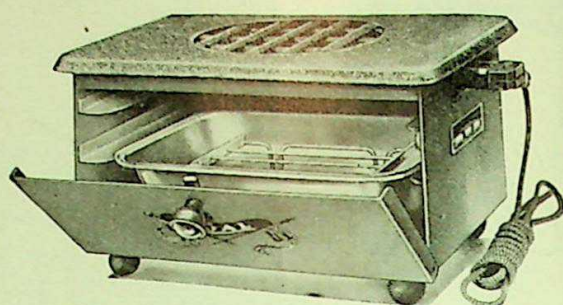
LEEDS: 9, York Place.



Telephone:  
CENTRAL 7167.

Telegrams:  
"FLASK, B'HAM"

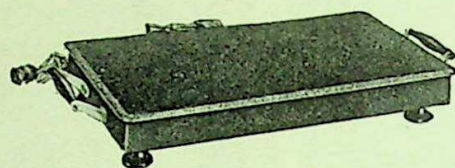
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### The "REGAL" BREAKFAST COOKER

De Luxe Model:—Has a real Vitreous Enamelled Hob, body finished in Pale Green Stoving Enamel. Price 12/6

Robustly constructed of Quality Steel, there is nothing on the market to equal it at the price. Consumption 1 unit per hour. Connected to heating or lighting circuit. Supplied complete with Grill Pan, Grid, 2 yds. 3-core Flex, connector and Adaptor. Price 12/6

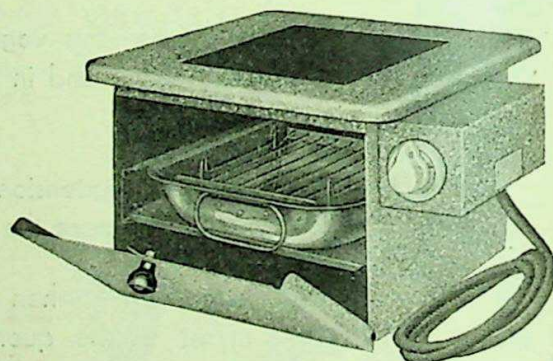
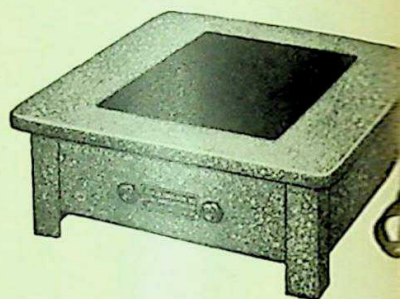


### The "REGAL" HOTPLATE

It is constructed throughout of Finest Quality Sheet Steel, finished in a Rich Brown Silkett Chrome Enamel, with Chrome Plated Fittings and Insulated Handles and Supplied complete with 3-core Flex, Connector and Adaptor. CONSUMPTION: Major Model 1-6th unit per hour. Minor Model 1/2 unit per hour. Price 12/6

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### THE "REGAL" SENIOR TABLE COOKER

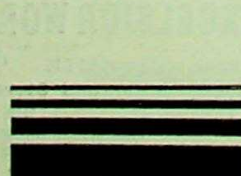
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Top is of finest quality cast iron, Vitreous Enamelled and the body is steel, Grey Mottle Stove Enamel.

Sole Manufacturers—

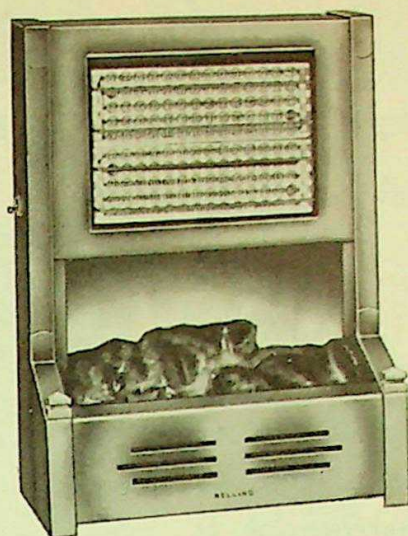
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96A, Coleridge Street, HOVE

Telephone: Hove 4878



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of Quality.





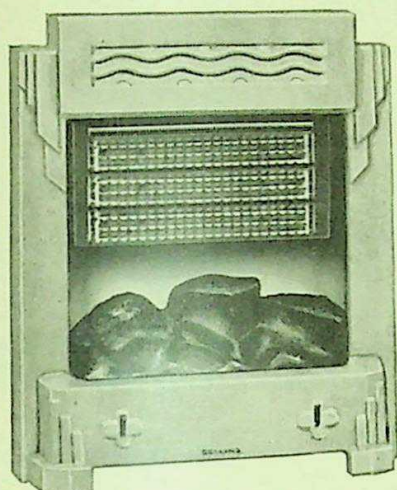
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List No. 362 (Firebar type) £2-18-0  
" " 364 (Projector " ) £3- 5-0  
Note the prices !



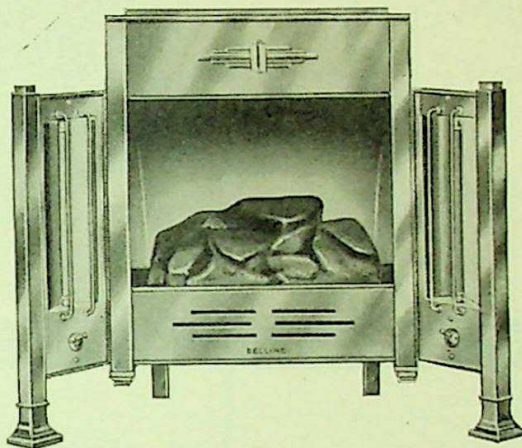
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2 kW Size.

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" " 534 (Projector " ) £4-15-0  
Beautiful satin silver and  
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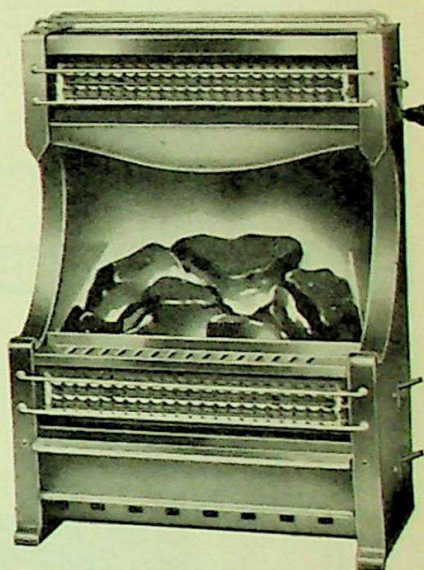
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Consumes 1, 2 or 3 units.



"Duplex Coal Fire"  
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## A.C./D.C. CIRCUIT TESTER

This new moving coil instrument measures D.C. milliamperes, D.C. volts, A.C. volts and ohms. D.C. readings are first grade in accordance with B.S.I. No. 89 and A.C. readings are correct within 3 per cent. at full scale reading. The instrument is complete with self-contained  $1\frac{1}{2}$ -Volt cell.

### RANGES

D.C. MILLIAMPS 0-1, 7.5, 30, 150 and 750.

D.C. VOLTS 0-3, 15, 150, 300, 450 and 600. } 1,000  
A.C. VOLTS 0-15, 150, 300, 450 and 600 } ohms  
20 to 4,000 cycles per second. } per volt.

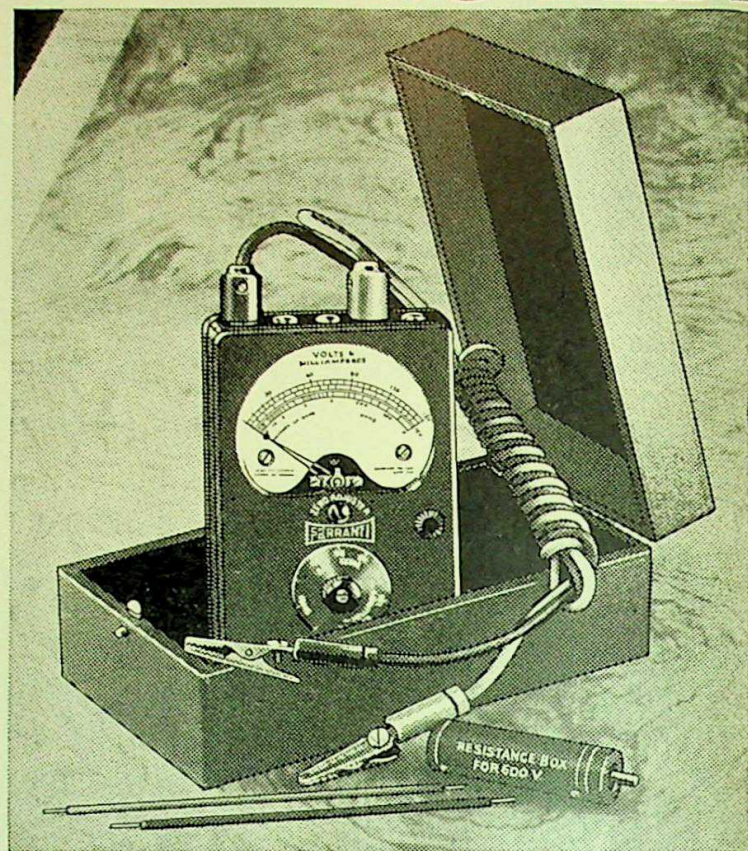
A.C. MILLIAMPS 0-1.

RESISTANCE 0-50,000 ohms self-contained and up to 0-30 megohms with external D.C. source up to 600V.

DIMENSIONS  $3\frac{1}{2} \times 4\frac{1}{2} \times 2\frac{1}{4}$  ins.

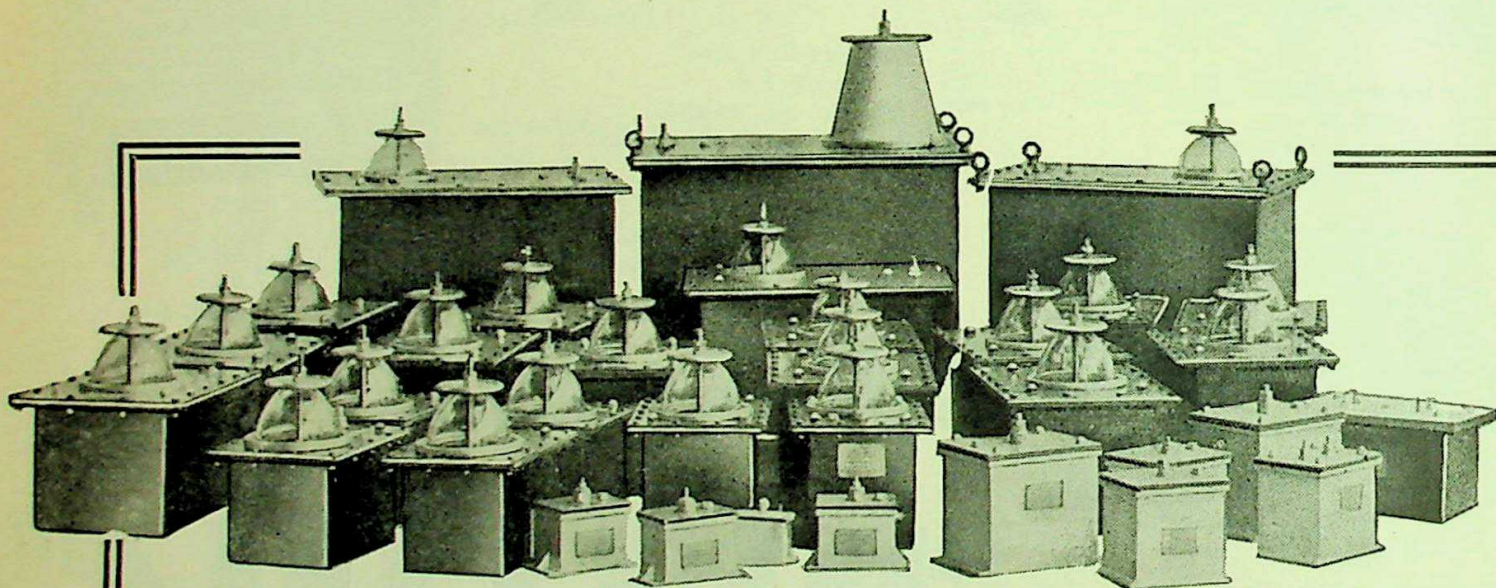
PRICE £5 15s. including substantial case and all accessories.

Write for list In. 1.



**FERRANTI LTD. HOLLINWOOD, LANCS., London Office: Bush House, Aldwych, W.C.2.**

P.1.18a.



## The Condensers that Experts Use—

The War Office, Admiralty, Air Force, the leading Cable Companies—the world's Broadcasting Companies—invariably state "T.C.C. Condensers" in their specifications. Real testimony to T.C.C. reliability—testimony to T.C.C.'s repeated test methods which assure, *before dispatch*, that the condensers are ready to do their job—and keep on doing their job without fear of breakdown. The experts know and pin their faith to T.C.C. Whatever your specification, large or small, make sure—with T.C.C. Condensers.

THE ILLUSTRATION shows a group of T.C.C. H.F. Transmitting Condensers—just one of the many sides of T.C.C.'s activities.

**T.C.C.**  
ALL-BRITISH  
**CONDENSERS**

**THE TELEGRAPH CONDENSER CO. LTD., Wales Farm Road, N. Acton, London, W.3.**





## TWO FIRES

By Appointment  
Ironfounders  
To H.M. The King.

*with a wide appeal*

The "Star" retailing from 8/6, and the "Starite" at 27/6, bring the famous Carron range well within the purchasing capacity of the masses.

The immense popularity of these two modestly priced models was proved last year when thousands were sold.

This year improved ventilation and greater heating capacity are calculated to even further increase their sales.

Huge stocks of these modern, well designed fires—in an excellent range of colours and in Standard Voltages are available for instant delivery.

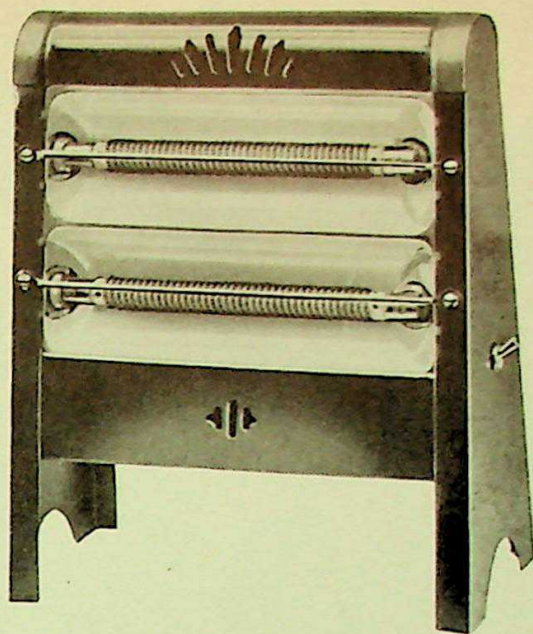
# CARRON

## ELECTRIC FIRES

### CARRON COMPANY

WORKS:

CARRON, FALKIRK

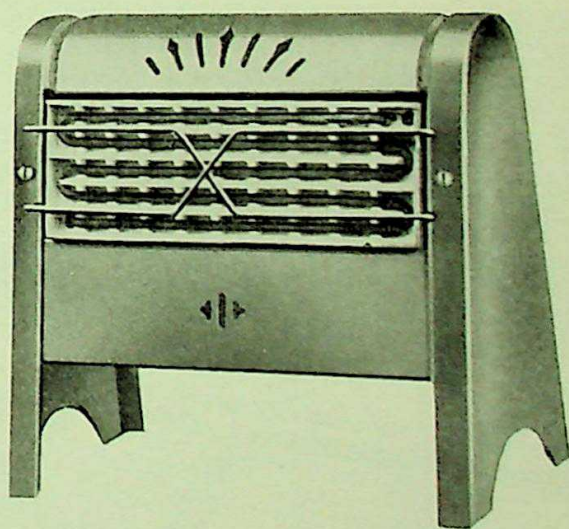


**THE STARITE**

*A handsome and reliable heater.*

*Similar to the "Star," but with plug-in "Carreflex" Elements in Chromium-plated Trough Reflectors. Finished in "Carrontine" Lacquer in Brown, Green, Blue or Pink. Switch at side controls one element.*

PRICE .. .. 2 K.W. 27 6.



**THE STAR**

*A portable heater of neat and attractive design.*

*Constructed of Sheet-metal, and supplied in "Carrontine" Lacquer Finish in Brown, Green, Blue or Pink. The 2 K.W. size has switch at side which controls one element.*

PRICE .. 1 K.W. 8/6, 2 K.W. 16/-



# CEILING ROSES



at your  
finger-tips  
in the  
NEW TUCKER li

Just turn to page 11, where MOULDED CEILING ROSES with porcelain interiors are listed at the bottom of the page—PORCELAIN TYPE surface and Recessed below. TWO PLATE catalogue number and prices are in the left-hand column, TWO PLATE—right.

In every section of this G.22 list the busy Who and Contractor has at his finger-tips just the details which he needs for the rapid selection and ordering of TUCKER MATCHED ELECTRICAL ACCESSORIES.

If your copy has not been mailed, please apply on Business

**J.H. Tucker & CO. LTD.**  
KINGS RD. TELAC TYSELEY, BIRMINGHAM

Showrooms:

LONDON

GLASGOW

BELFAST

CARLISLE

22/23, D'Arblay St., W.1.

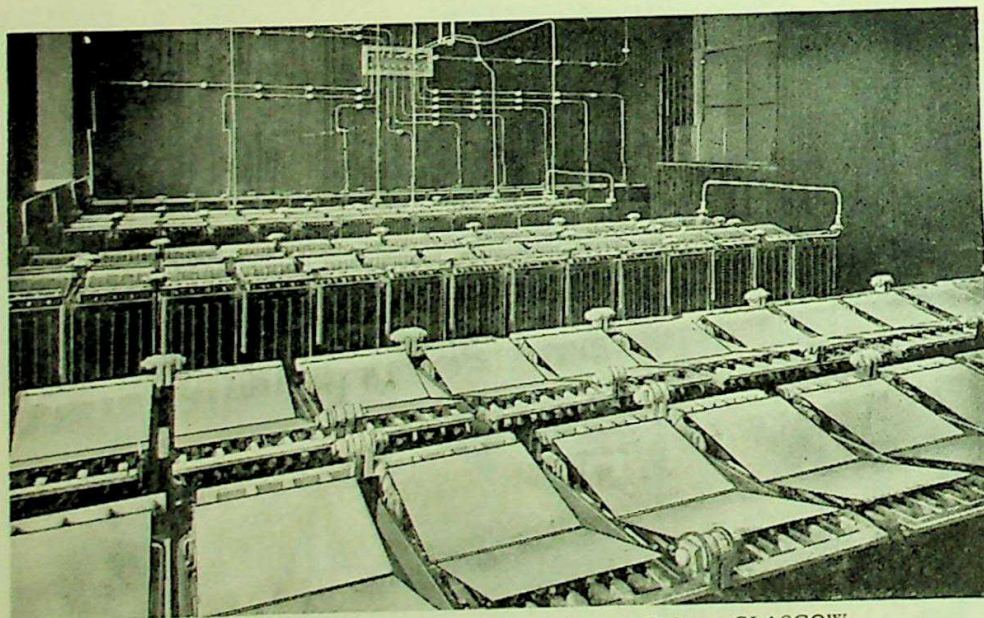
17, Bothwell St., C.2.

41, Donegal Place.

11, Park St.

MAKERS OF THE FAMOUS "TITAN" (A754) LAMPHOOD

## At the DAVIOT ROYAL MENTAL HOSPITAL



they put their trust  
in

**TUDOR**  
ACCUMULATOR

- Consulting Engineer: Mr. F. W. Raynes, Forty-Second Avenue, Cathcart, GLASGOW.
- Contractors: The Aberdeen Electrical Engineering Co. Ltd., 17 Belmont Street, ABERDEEN.

The Daviot Mental Hospital, Pitcaple, Aberdeenshire, is lighted by Tudor Accumulators. The equipment consists of 125 cells, capacity 345 ampere-hours.

You, too, can put your trust in Tudor, for they have made accumulators, and nothing but accumulators, since the earliest days of electrical storage. It's safety first to specify Tudor Accumulators, they never let you down.

There is a Tudor engineer ready to discuss all your electrical problems.

Tudor Accumulators are entirely British-made in a British factory, by British workmen, employing British capital.

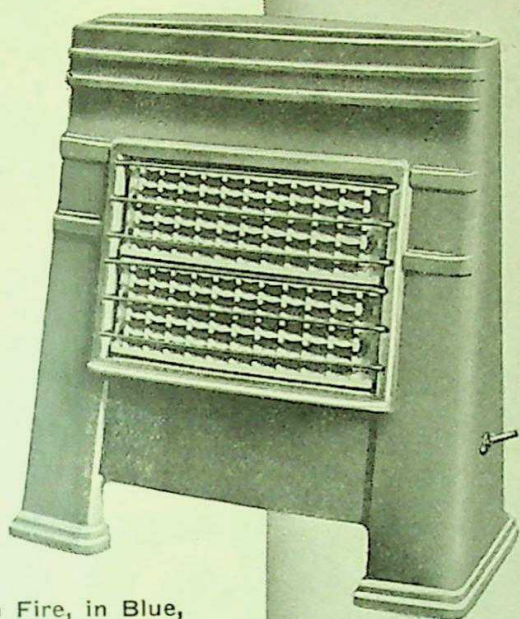
For hospitals, institutions, and buildings where an emergency lighting system is vital, install 'Safetylyte.'

THE TUDOR ACCUMULATOR CO. LTD., 50 GROSVENOR GARDENS, S.W.1. SLOANE 0



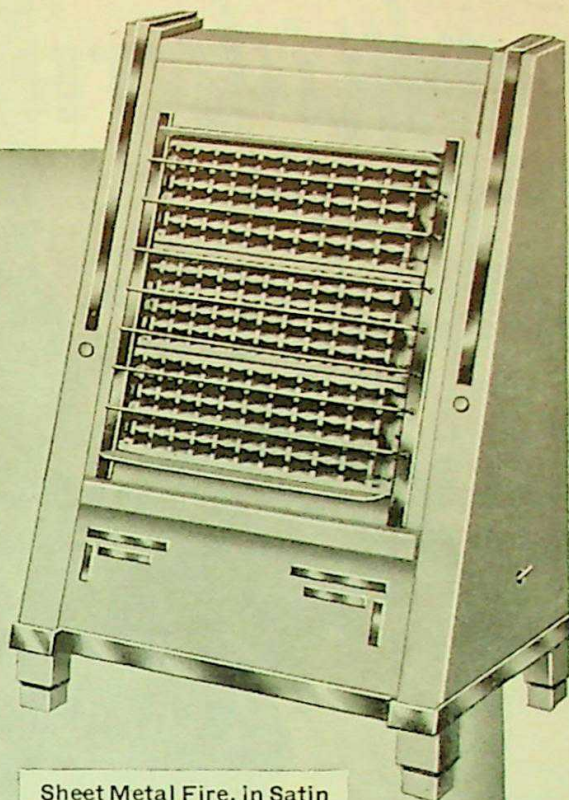
# G.E.C.

## ELECTRIC HEATING



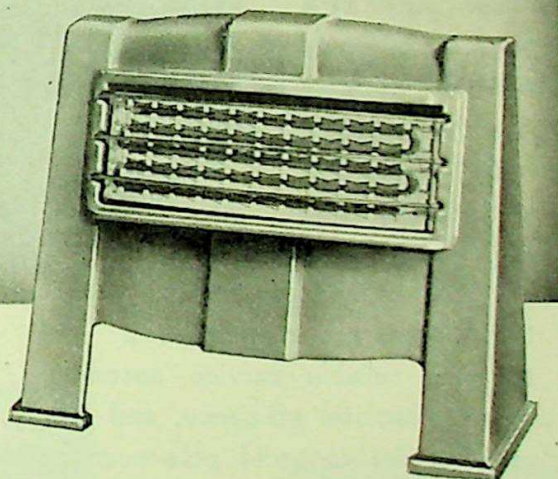
Cast Iron Fire, in Blue, Green, Buff, Grey or Golden Brown Vitreous Enamel. D2473 (3,000 watts) £2 12 0. D2472, as illustrated (2,000 watts).

Price £1 16 6



Sheet Metal Fire, in Satin Silver, with Chromium-Plated Facings. D2543, as illustrated (3,000 watts) £4 15 0. D2542 (2,000 watts).

Price £3 17 6

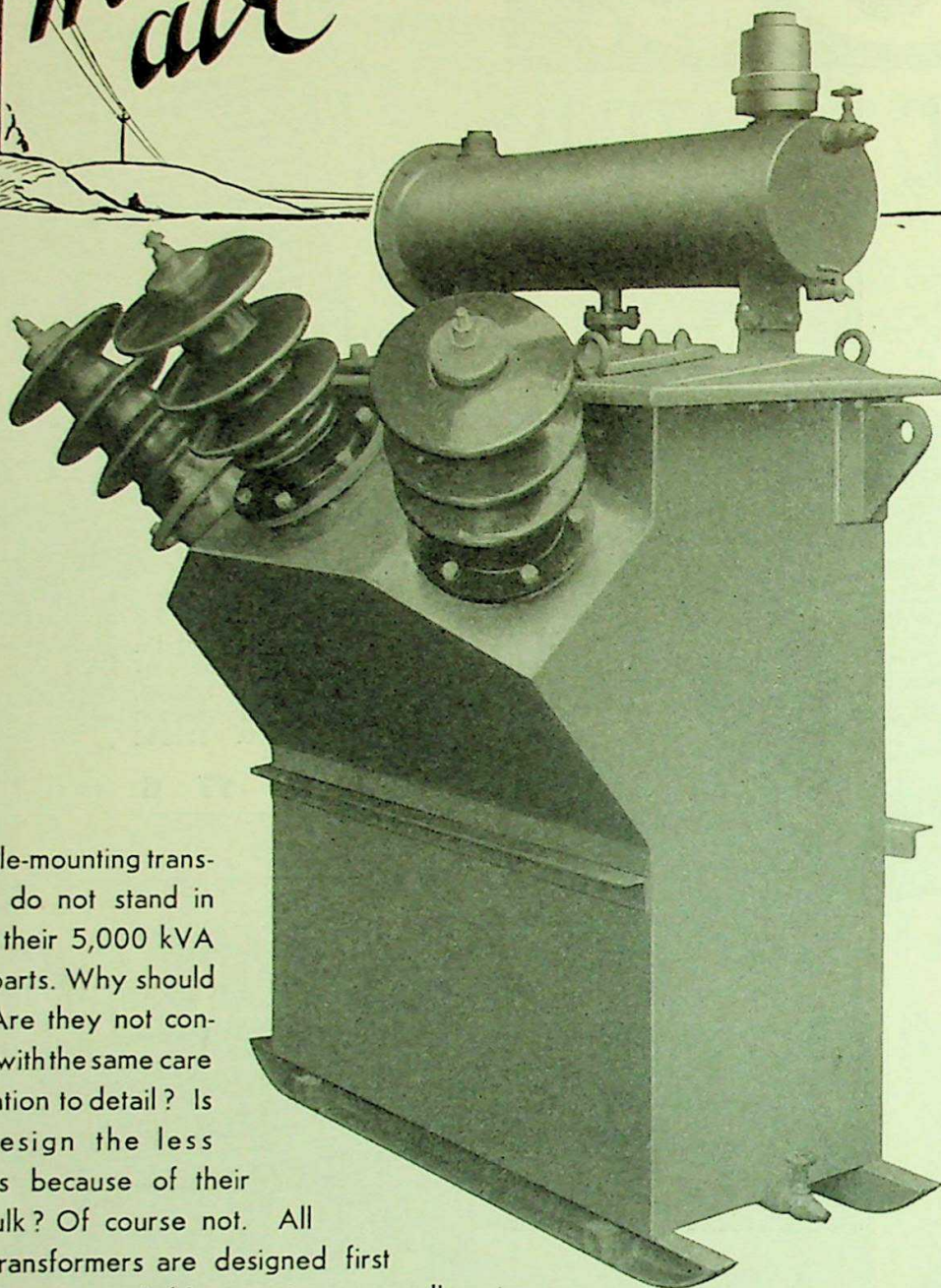


Cast Iron Fire, in Blue, Green, Beige or Black Vitreous Enamel. D2433 (3,000 watts) £2 5 0. D2432 (2,000 watts) £1 9 6. D2431, as illustrated (1,000 watts). Price 18/6

3 EXAMPLES  
FROM THE  
NEW RANGE  
OF  
"MAGNET"

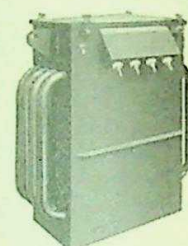
# ELECTRIC FIRES



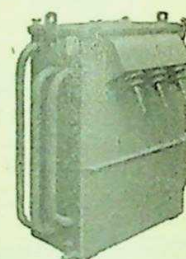


33,000 volt, 10 kVA.

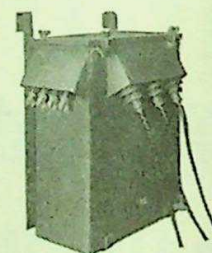
J. & P. pole-mounting transformers do not stand in awe of their 5,000 kVA counterparts. Why should they? Are they not constructed with the same care and attention to detail? Is their design the less generous because of their minor bulk? Of course not. All J. & P. transformers are designed first of all to give reliable service, secondly to give good electrical efficiency, and thirdly, to sell at a reasonable price. Look closely at the range of pole-mounting transformers illustrated, and then send us your next enquiry!



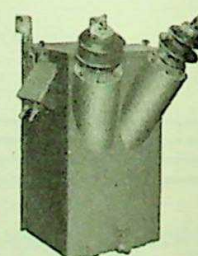
3,300 volt, 35 kVA



6,600 volt, 25 kVA.



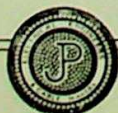
11,000 volt, 10 kVA.



22,000 volt, 10 kVA.

**J. & P.** for pole-mounting  
**TRANSFORMERS**

**JOHNSON & PHILLIPS LTD.**  
Charlton, London, S.E.7.







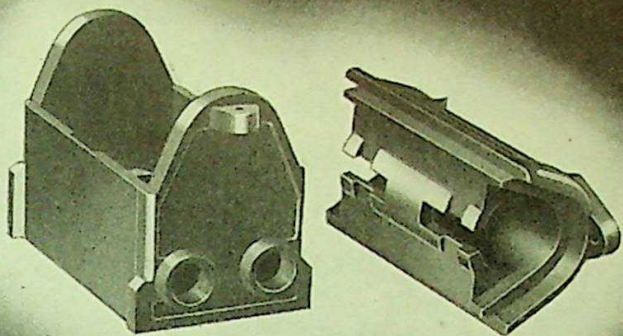
# CRYSTALATE MOULDINGS

ARE

ALWAYS

PERFECT

FROM THE SIMPLEST



TO THE MOST COMPLICATED

AS PIONEERS OF THE INDUSTRY OUR EXPERIENCE IS UNIQUE IN THE MANUFACTURE OF PLASTIC MOULDINGS IN EVERY TYPE OF MATERIAL INCLUDING:— SYNTHETIC RESINS OF THE CRESOL, PHENOL AND UREA TYPES, CELLULOSE ACETATES, ETC.

Telephone Nos:  
Clerkenwell 2633-2116  
(6-lines).

Telegrams:  
'Crystalate, Finsquare  
London.'

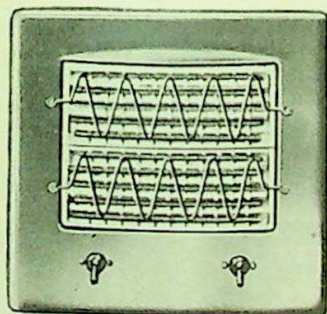
CRYSTALATE, 60/62, CITY ROAD, LONDON, E.C.1

## FALCO

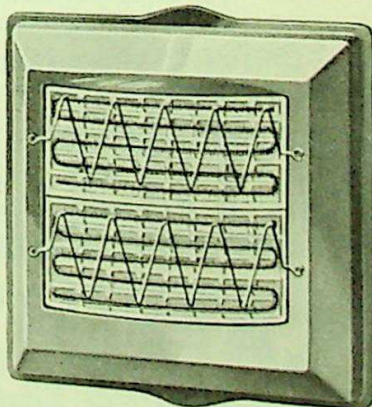
### ELECTRIC FIRES

New Designs

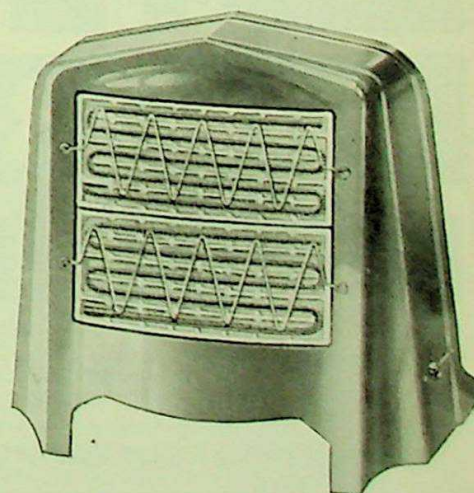
A large selection of models in the most attractive finishes now available for 1935-36



No. 731  
Wall Fire.



No. 735  
Wall Fire.



No. 700  
Portable Fire.

THE FALKIRK IRON CO. LTD.

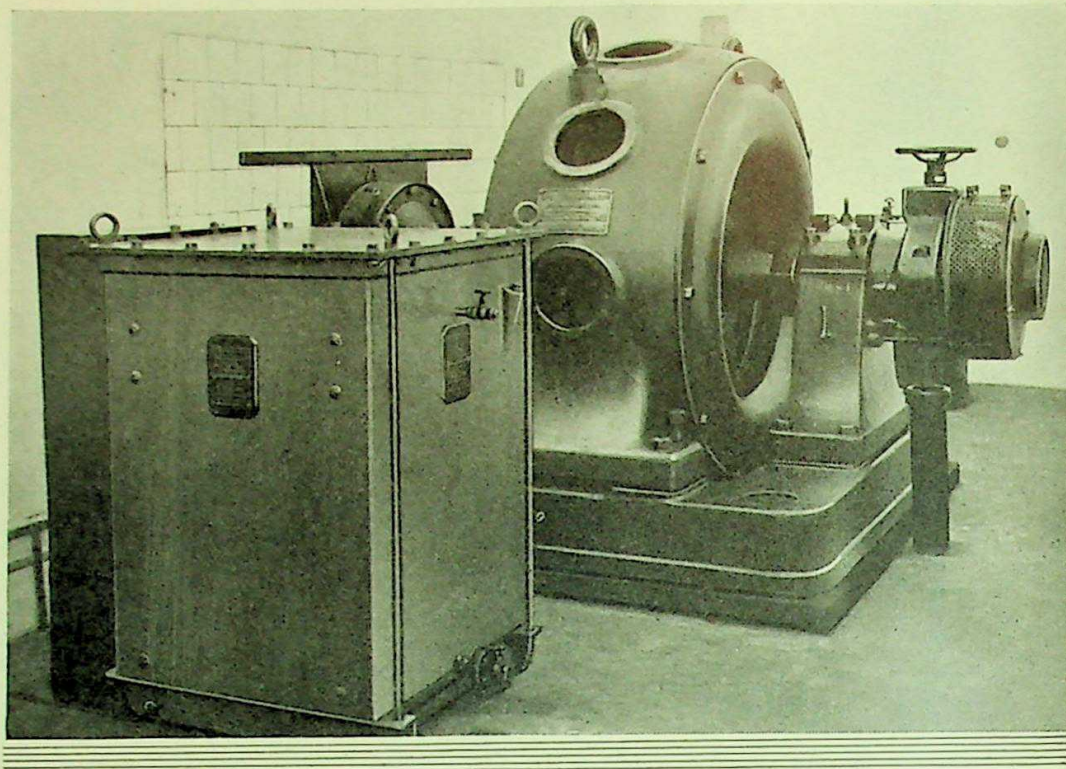
WORKS: FALKIRK.

LONDON:  
Mortimer House,  
Mortimer St., W.1.

MANCHESTER:  
1, Cathedral House,  
Long Millgate, 3.



200 H.P. 3300  
Volt motor  
with 50kVA B.I.  
High Tension  
Condenser  
installed in a  
mill.



## INCREASE YOUR POWER FACTOR & REDUCE IDLE CURRENT LOSSES

# B.I.

The installation of B.I. Condensers is a most satisfactory method of reducing the cost of power bills where power factor penalties are imposed. Here are five of the B.I. Specific advantages:—

1. Installation cost is low, for no foundations are needed.
2. No attention necessary for operation or maintenance.
3. Very little floor space occupied.
4. Operating losses guaranteed not to exceed 1.5 watts per kVA.
5. Normal temperature rise does not exceed 10°F.

We will be pleased to recommend the most suitable type for any purpose on receipt of full particulars.

## POWER CONDENSERS



## BRITISH INSULATED CABLES LTD.

*Cable Makers and Electrical Engineers*

**PRESCOT, Lancs.**

Telephone No. PRESCOT 6571

London Office: SURREY HOUSE, EMBANKMENT, W.C.2. 'Phone No. Temple Bar 4793, 4, 5, & 6.



# ALBION Conduits & Troughing

## SINGLE & MULTIPLE-WAY GLAZED STONEWARE CONDUITS

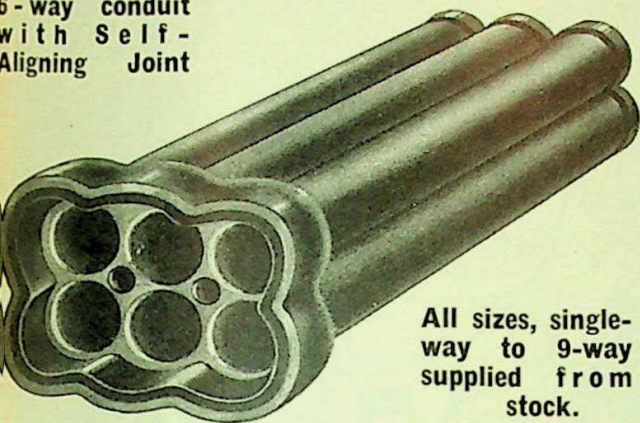
Fitted with Self-Aligning Joints  
and

### GLAZED STONEWARE TROUGHING

Rectangular and "U" Shape with Socket Joints

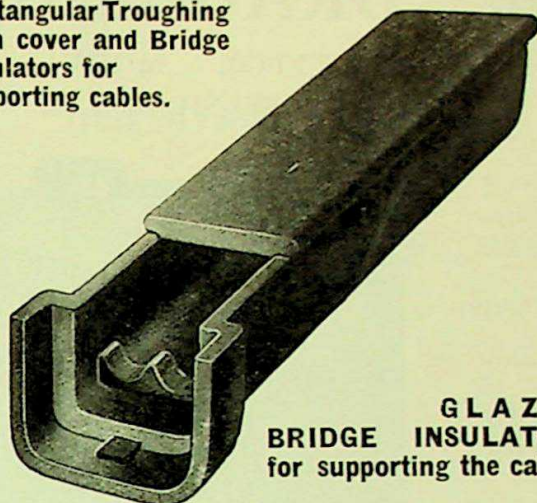
LARGE STOCKS HELD FOR PROMPT DELIVERY.

6-way conduit  
with Self-  
Aligning Joint



All sizes, single-  
way to 9-way  
supplied from  
stock.

Rectangular Troughing  
with cover and Bridge  
Insulators for  
supporting cables.



GLAZED  
BRIDGE INSULATORS  
for supporting the cables.

## ALBION CLAY Company Ltd.

*Original Manufacturers of the Self-Aligning Multiple Way Conduits.*

*Head Office and Works:*

Woodville, Nr. BURTON-ON-TRENT.

Telegrams: "Albion ('Phone) Woodville."

Telephone: 7278 Swadlincote (2 lines).

*London Office:*

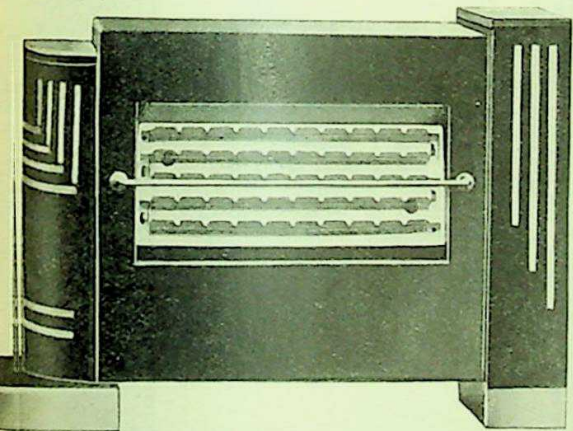
133-136, HIGH HOLBORN, W.C.1.

Telegrams: "Sewerage, West Cent., London."

Telephone: Holborn 7984.



# modern design and pleasing colour finish of "REDOT" ELECTRIC FIRES will send up your sales



Here are two new REDOT models that we believe will be winners during the coming season. They are most attractively finished in sprayed copper or silver, or red, pale green or blue.

The 1-Kw. size is listed at 12/6d., and the 2-Kw. at 23/-, subject to the usual trade discount and, as with all REDOT appliances, they are guaranteed for two years.

*We shall be glad to send a catalogue on request.*

**LIGHTING TRADES LTD.**  
**WELSBACH LIGHT CO. LTD.**

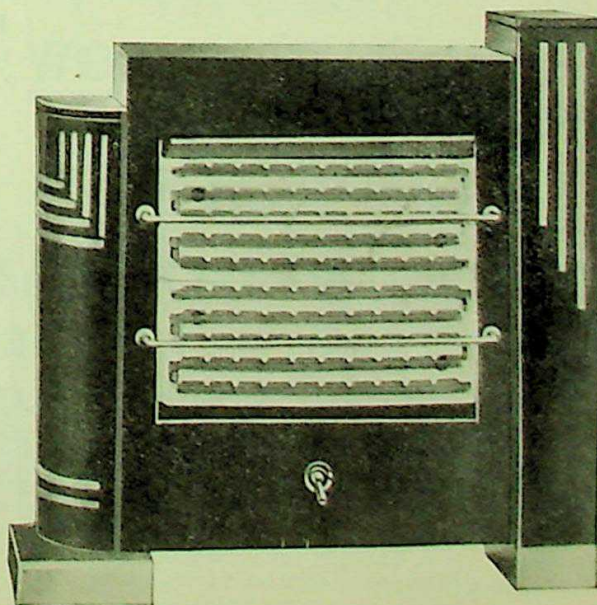
51/55 Garratt Lane, Wandsworth, London, S.W.18

Telephone: Battersea 6008.

Showrooms & Trade Counter: 17/19 Farringdon Rd., London, E.C.1

Telephone: Holborn 1296.

Branches at: Birmingham, Edinburgh, Glasgow, Leeds.





# NO EXTRAVAGANT CLAIM IS MADE

BUT YOU WILL AGREE AFTER  
EXAMINATION THAT

## THE "DRAGOR 101"

COMPETITOR MODEL  
ELECTRIC WASH BOILER

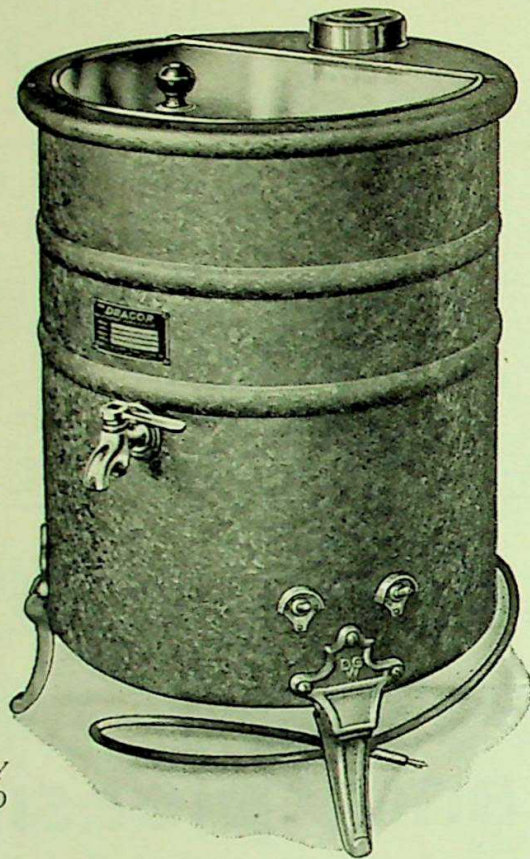
HINGED  
COPPER  
LID  
RUSTLESS

TINNED  
COPPER  
PAN

SIZE  
(Approx.)  
10 GALLONS

3 kW.  
3 HEAT  
CONTROL

COMPLETELY  
GUARANTEED



### IS THE BEST VALUE ON THE MARKET.

|            |                                 |             |      |
|------------|---------------------------------|-------------|------|
| No. 101.   | GALVANISED AND<br>BRASS TAP - - | <b>52/6</b> | Each |
| No. 101/C. | Ditto, CHROMIUM<br>TAP - - -    | <b>54/-</b> | Each |
| No. 101/D. | NEW MODEL, DE<br>LUXE ENAMEL -  | <b>58/-</b> | Each |

DELIVERY FROM STOCK.

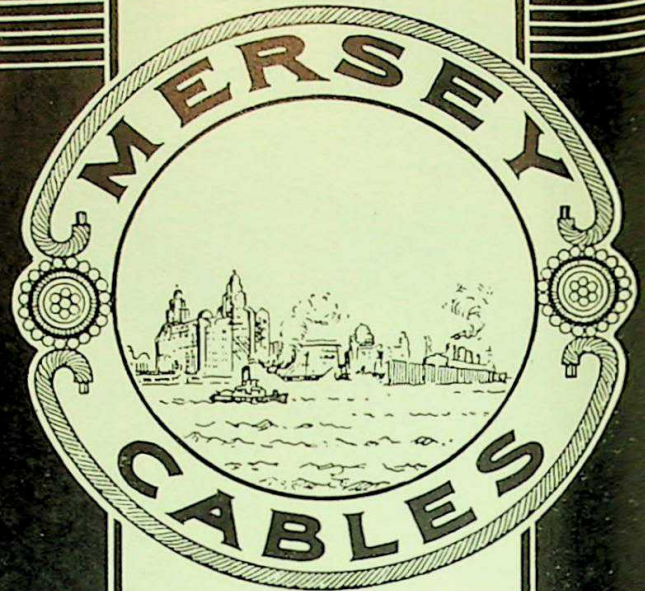
### TRY A SAMPLE NOW!

Ask for our 1935 full range  
Price List and Trade Terms.

**DRAKE & GORHAM**  
**WHOLESALE • LIMITED**  
**77, LONG ACRE, LONDON, W.C.2.**

'Phone: Temple Bar 3993.

Branches:—MANCHESTER—29, Piccadilly. BRIGHTON—24,  
Marlborough Place. GLASGOW—51, Waterloo Street. BRISTOL—  
85, Broad Street. DUBLIN—2, Church Lane, College Green. Midland  
Representatives—W. T. BOWER, 184, Jockey Road, Sutton Coldfield.  
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**Mersey Cable Works Ltd.**  
**LINACRE LANE, BOOTLE,**  
**LIVERPOOL, 20**

Telephone :                      Telegrams :  
Bootle 1485 (2 lines)      Mercables, Liverpool





By Appointment  
Ironfounders  
To H.M. The King.

# TWO FIRES

## *with a wide appeal*

The "Star" retailing from 8/6, and the "Starite" at 27/6, bring the famous Carron range well within the purchasing capacity of the masses.

The immense popularity of these two modestly priced models was proved last year when thousands were sold.

This year improved ventilation and greater heating capacity are calculated to even further increase their sales.

Huge stocks of these modern, well designed fires—in an excellent range of colours and in Standard Voltages are available for instant delivery.

# CARRON

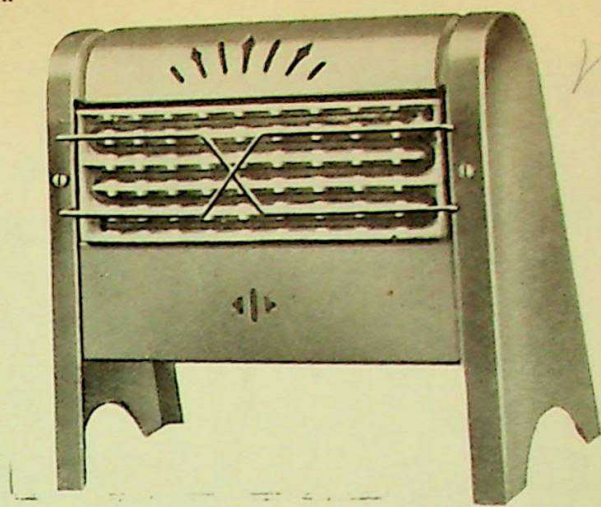
## ELECTRIC

## FIRES

### CARRON COMPANY

WORKS:

CARRON, FALKIRK

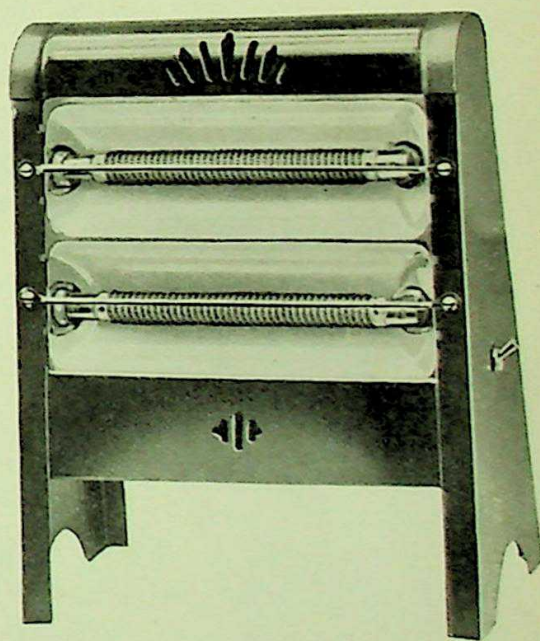


THE STAR

*A portable heater of neat and attractive design.*

*Constructed of Sheet-metal, and supplied in "Carrontine" Lacquer Finish in Brown, Green, Blue or Pink. The 2 K.W. size has switch at side which controls one element.*

PRICE .. 1 K.W. 8/6, 2 K.W. 16/-



THE STARITE

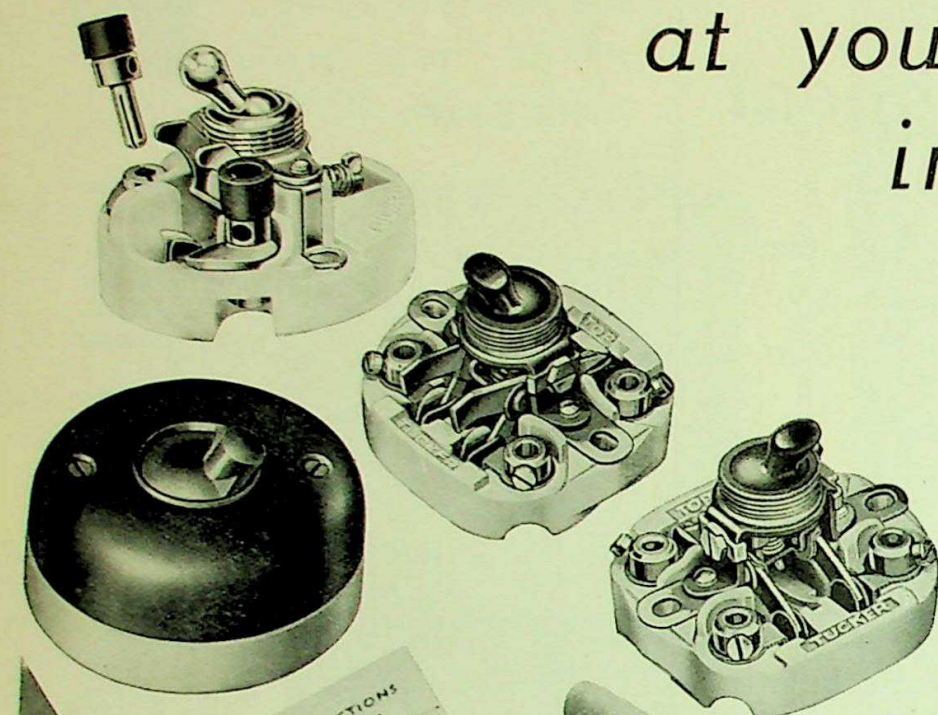
*A handsome and reliable heater. Similar to the "Star," but with plug-in "Carreflex" Elements in Chromium-plated Trough Reflectors. Finished in "Carrontine" Lacquer in Brown, Green, Blue or Pink. Switch at side controls one element.*

PRICE .. .. 2 K.W. 27/6.



# SWITCHES

*at your finger tips  
in the handy  
TUCKER list*



The exceptionally extensive **TUMBLER SWITCH SECTION** of this G.22 list enables the busy Wholesaler and Contractor to meet even "out of the ordinary" installation requirements without delay—and each switch has the superior construction and finish associated with all TUCKER "TELACCESSORIES."

Popular competitive small base "TITAN" and "SPARTAN" Shockproof lines are on pages 12 and 13, next is the "LINK-BOY"—a silent movement with exceptional insulative qualities and COMPLETE Positive Action—followed by the well known B.4000 Quick Make and Quick Break heavy duty range (the standard movement in our "Sincord" ceiling switches, "Stanlok" and "Nolok" switchplugs, etc.).

Two way and Intermediate switches for control from two or more positions are also listed and an entirely redesigned Double Pole range. For schools, mental homes, etc., a new Shockproof locked cover type is available in addition to the complete metal range of secret pattern switches. Each section has the same concise arrangement so that no matter which item is required it is "at your finger tips in this G.22 List."

*Are you making the fullest use of your copy?*

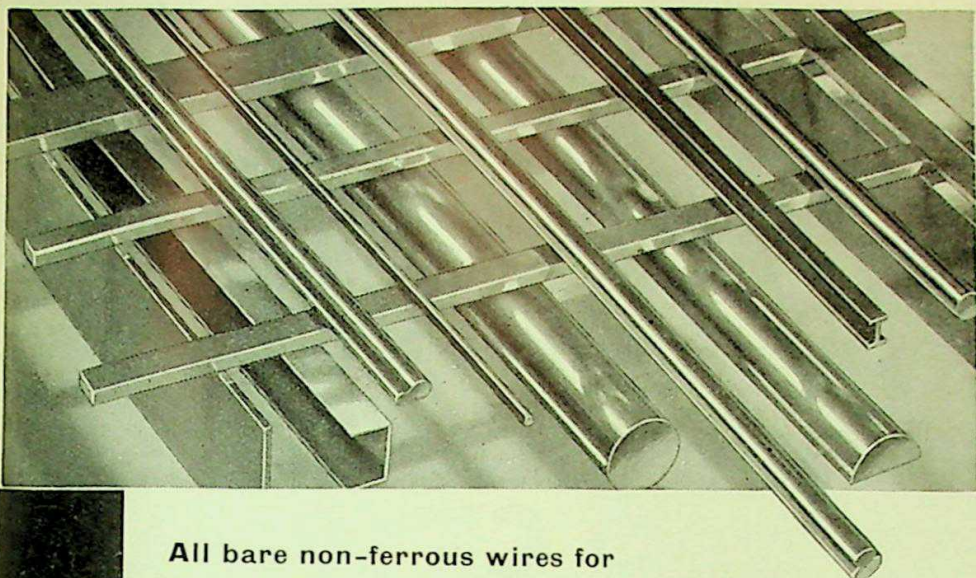
**J.H. Tucker & CO. LTD.**  
KINGS RD. TELAC TYSELEY, BIRMINGHAM, II

Showrooms:

LONDON 22/23, D'Arblay St., W.1. GLASGOW 17, Bothwell St., C.2. BELFAST 41, Donegal Place. CARDIFF 11, Park Lane  
MAKERS OF THE FAMOUS "TITAN" (A754) LAMPHOLDER



# JOHNSONS'



## BARE COPPER

WIRE · RODS  
STRIP · BARS  
STRAND ·  
AND ALL ELECTRICAL  
WIRES

All bare non-ferrous wires for  
electrical purposes.

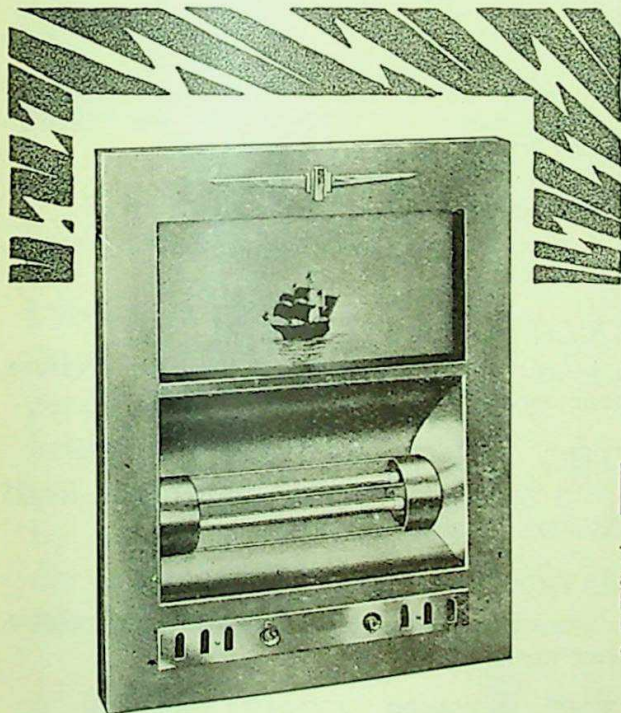
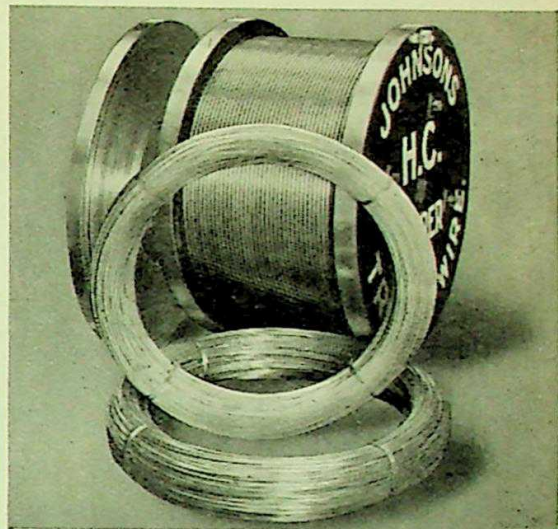
IRON & STEEL WIRES "CRAPO" GALVANISED



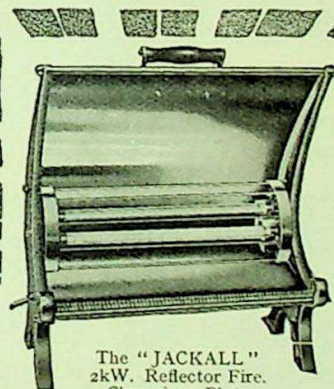
Ambergate Wire Mills,  
near Derby.

also at Birmingham  
and London.

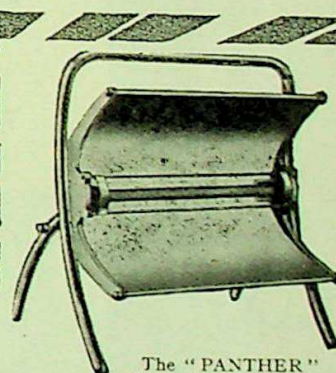
BRADFORD IRONWORKS · MANCHESTER



The "SKYE" 2kW. Panel Fire.  
Finished in Chromium Plate and  
Spray Enamel, a choice of  
colours being available.



The "JACKALL"  
2kW. Reflector Fire.  
Chromium Plate  
and Oxidised Silver.



The "PANTHER"  
1kW. Reflector Fire.  
Chromium Plate and  
Black Enamel.

## RADIANT HEAT *at the touch of a switch*

These fires, with their high efficiency chromium plated parabolic reflectors and well designed elements are bound to be popular since, in addition to being really sound engineering productions, they are extremely attractive in appearance. For full particulars of these and other fires apply for catalogue F32/85.

# Hotpoint

REGD TRADE MARK

## ELECTRIC FIRES

MADE IN ENGLAND

Advt. of

**The Hotpoint Electric Appliance Co., Ltd.,**  
Head Office: 24, Newman Street, London, W.1

Telephone: Museum 9144/9.

BRANCHES AT:—

Birmingham, Bradford, Bristol,  
Dublin, Edinburgh, Glasgow,  
Manchester, Newcastle-on-Tyne,  
Norwich, Nottingham, Southampton.



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Grid  
Contracts*

*for*  
**STIRLING  
BOILERS**  
*include*

**CITY OF SHEFFIELD**

Blackburn Meadows Power Station. 3 Boilers, heating surface 16,269 sq. ft. 600 lbs. pressure, evaporation 150,000 lbs. per hour normal.

Neepsend Power Station. 3 Boilers, heating surface 16,269 sq. ft. 625 lbs. pressure, evaporation 150,000 lbs. per hour normal.

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**EDMUNDSONS ELECTRICITY CORPORATION LTD.**

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Southwick Power Station. 1 Boiler, heating surface 13,459 sq. ft. 675 lbs. pressure, evaporation 150,000 lbs. per hour normal.

**YORKSHIRE ELECTRIC POWER COMPANY**

Thornhill Power Station. 4 Boilers, heating surface 12,900 sq. ft. 450 lbs. pressure, evaporation 100,000 lbs. per hour normal.

ALL THE ABOVE ARE FITTED WITH BAILEY FURNACES

**THE STIRLING BOILER CO. LTD.**

32/33 FARRINGDON STREET, LONDON, E.C. 4.



# THE FINISH IS THE START OF BIGGER SALES!



Utility unadorned is no longer sufficient—the latest "FOOCHOW" Finishes are part and parcel of modern selling plans. Heat-resisting finishes in beautiful colours at a fraction of previous cost—processing time alone reduced by as much as 75%—these are just two of the achievements of our ELECTRICAL RESEARCH DEPARTMENT.

## Foochow ORIENTAL LACQUER

The Speediest of all High-Class Finishes for FIRES, COOKERS, REFRIGERATORS, WATER HEATERS, SWITCHGEAR WORK, etc.

Please address enquiries to Service Manager, Dept. 7.

**DONALD MACPHERSON & CO. LTD.**  
MITCHAM, LONDON, and KNOTT MILL, MANCHESTER

H.C.T.

# EFESCA SERVIS

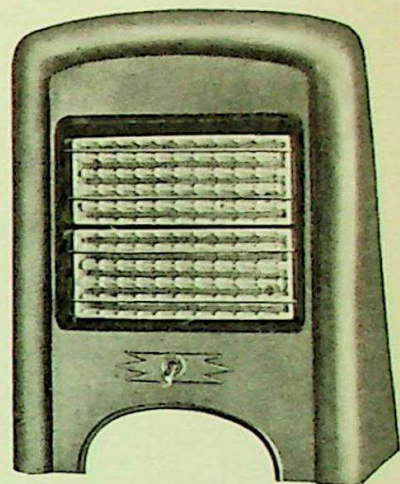
MADE IN ENGLAND.

REGD.

## ELECTRIC FIRES

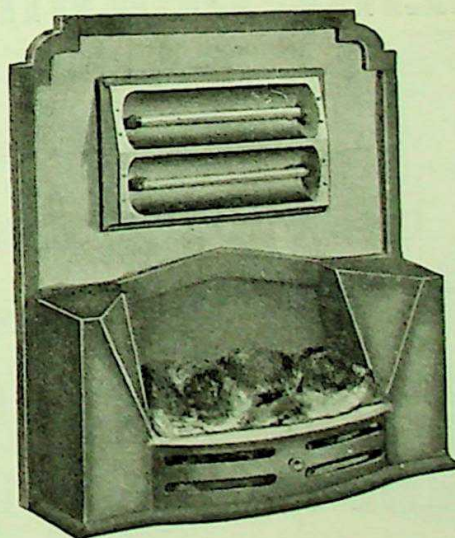
THE  
"STREAMLINE"

Available in 1-2 and 3 kW. Loading in oxy-copper and oxy-silver finishes.



THIS ATTRACTIVE AND  
LOW PRICED RANGE IS

FITTED WITH SUPERPOSED HIGH  
RADIANT SPIRAL ELEMENTS



THE "SUNGLEAM"  
With the New Supercoal.

These and many other New Designs — are — fully illustrated in List No. 710.

Please apply for copy.

**FAKSTADELMANN & CO. LTD.**  
83-93 FARRINGTON RD., LONDON E.C.1.

GLASGOW, MANCHESTER, BIRMINGHAM, DUBLIN,  
NEWCASTLE-ON-TYNE, CARDIFF, LEEDS, LIVERPOOL,  
SWANSEA, BRADFORD.

Works:  
LONDON, S.W., BIRMINGHAM, RAINHILL (LIVERPOOL).





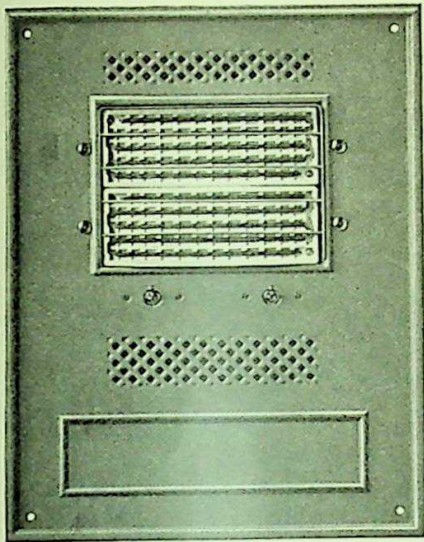
## **“An amazing beginning, Mr. Russell!....**

What with the orders I am getting through your User Salesmen, your latest display material, the full dressed window you fixed for me and the delightful new press campaign, the orders I am receiving seem to indicate you have excelled yourself this year. Personally I am glad I have gone over to Crompton. The profits are better too.”

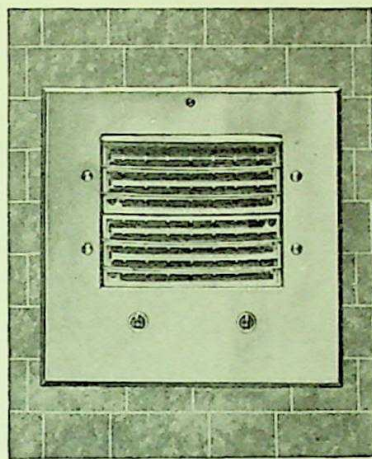
# **CROMPTON LAMPS**



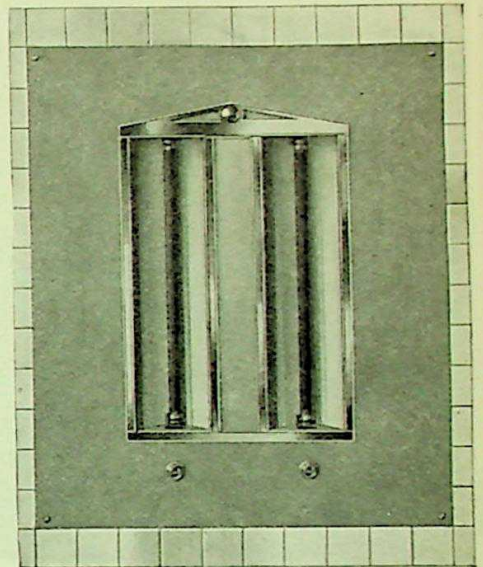
# NEW-COMERS to the **XCEL** (ALL BRITISH) RANGE OF ELECTRICAL APPLIANCES



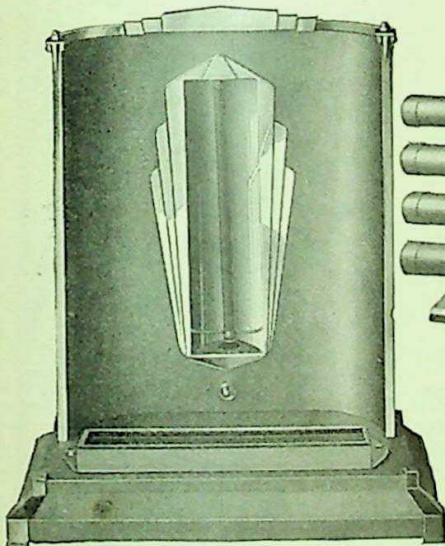
H 7364. CAST PANEL INSET FIRE.  
Standard finishes (Vitreous Enamel).  
Green, Buff or Grey  
Prices : With Single-pole switches 38/-  
" Double-pole " 42/-



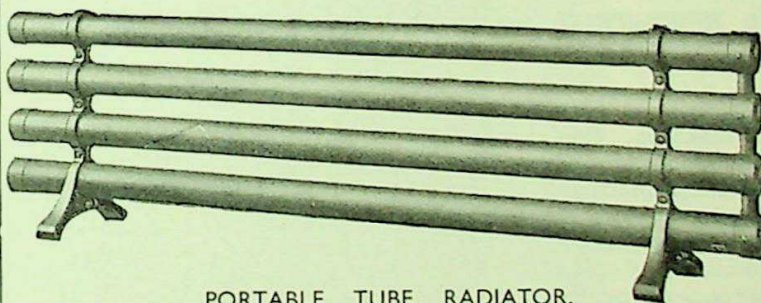
H 7368. CHROMIUM-PLATED INSET  
FIRE. 2 k.W.  
Prices : With Single-pole switches 32/-  
" Double-pole " 36/-



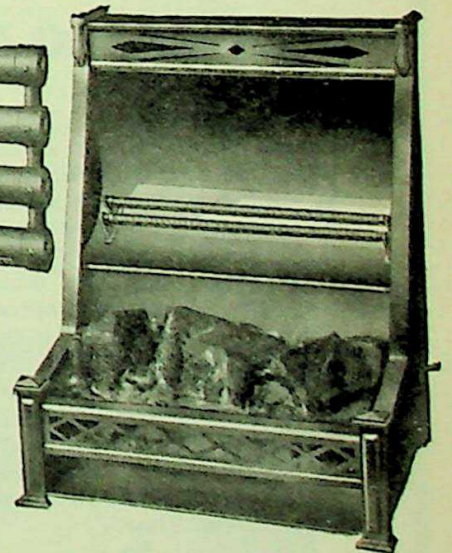
H 7369. PANEL INSET FIRE. 2 k.W.  
Pressed surround, with two 1 k.W. elements  
in Chromium-plated reflectors.  
Prices : With Single-pole switches - 47/-  
" Double-pole " - 51/-



H 7373. 1 k.W. FLOODLIT FIRE.  
Very attractive new design.  
Finishes : Blue, Gold, Silver, with  
polished facings.  
Element set in Chromium-plated  
reflector.  
Price - - - £3 10s.



PORTABLE TUBE RADIATOR.  
A very useful portable Tube Radiator, loading 1 k.W.  
May be stood in any situation. Useful for Office Heat-  
ing, Garages, Greenhouses, etc. Finish : Standard  
Brown. Dimensions : 4 ft. long, 13½ ins. high, total  
projection over bracket base 7 ins.  
Price - - - £4 2s.



H 7356. COSYGLO. 2 k.W.  
A combination of coal effect with  
high efficiency reflector-type heating.  
Price - - - £3 10s.

WRITE FOR LIST No. 493  
GIVING FULL PARTICULARS  
OF THESE & MANY OTHER  
ATTRACTIVE DESIGNS

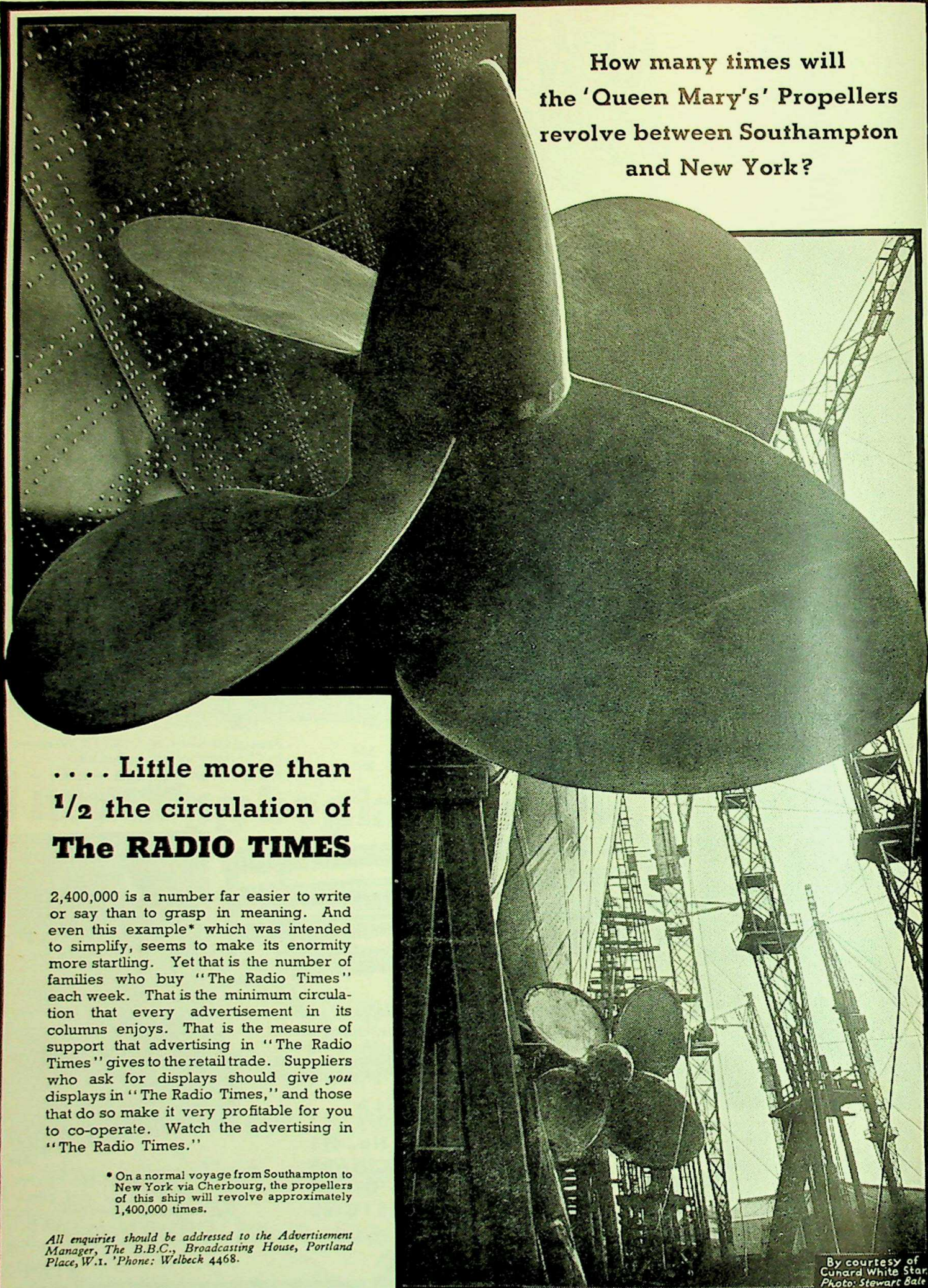


## SIEMENS



Advt. of SIEMENS ELECTRIC LAMPS AND SUPPLIES LIMITED. 38/39, Upper Thames Street, London, E.C.4.  
Branches at: Belfast, Birmingham, Bristol, Cardiff, Dublin, Glasgow, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Nottingham, Sheffield, Southampton





How many times will  
the 'Queen Mary's' Propellers  
revolve between Southampton  
and New York?

.... Little more than  
 $\frac{1}{2}$  the circulation of  
**The RADIO TIMES**

2,400,000 is a number far easier to write or say than to grasp in meaning. And even this example\* which was intended to simplify, seems to make its enormity more startling. Yet that is the number of families who buy "The Radio Times" each week. That is the minimum circulation that every advertisement in its columns enjoys. That is the measure of support that advertising in "The Radio Times" gives to the retail trade. Suppliers who ask for displays should give *you* displays in "The Radio Times," and those that do so make it very profitable for you to co-operate. Watch the advertising in "The Radio Times."

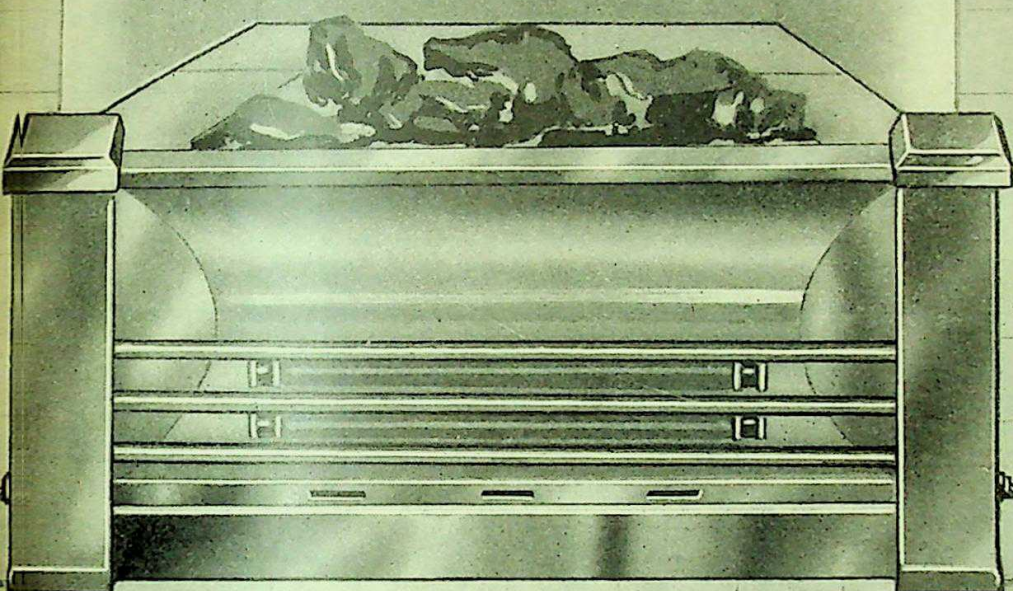
\* On a normal voyage from Southampton to New York via Cherbourg, the propellers of this ship will revolve approximately 1,400,000 times.

All enquiries should be addressed to the Advertisement Manager, The B.B.C., Broadcasting House, Portland Place, W.1. 'Phone: Welbeck 4468.

By courtesy of  
Cunard White Star.  
Photo: Stewart Bale



The 'NEW ASCOT' Price £5.5.0



# ONE of the NEW *Creda* 1935 - 6 FIRES

This improved model combines flickering firelight with a powerful reflector heater. Fits into existing grates from 16 in. to 20 in. wide.

With new models and old and tried favourites, with new finishes and a superb full-colour list, Creda have set out to improve on last year's record season. Let Creda help you to a record season, too.

This and over thirty other designs may be seen in the FULL COLOUR LIST available from Simplex Electric Company Limited, Head Office: Empire House, Gt. Charles Street, Birmingham, and Branches.

All Creda Portable Domestic Appliances and Fires (when constructed of metal) are now fitted with Three Core Flexible as standard (complying with I.E.E. Regulations) without increase in price.





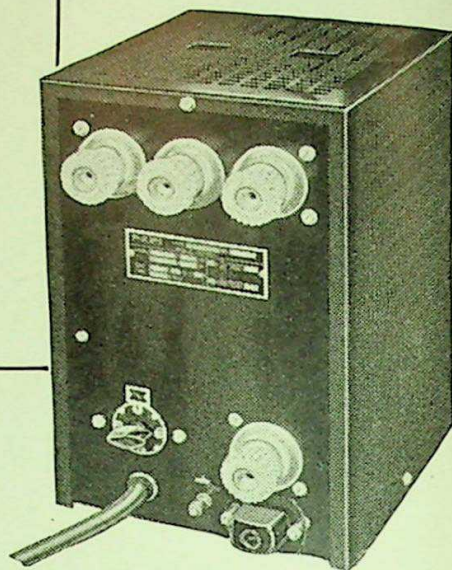


Use  
**PHILIPS "OXODE"**  
**RECTIFIERS**  
 for efficiency, economy  
 and flexibility

Over 50 Electrical Supply Authorities have purchased these rectifiers in connection with A.C./D.C. changeovers — a striking testimony to their efficiency and economy.

If there is any purpose for which you are interested in obtaining D.C. from an A.C. Supply, please complete the adjoining coupon.

Type 1064 (illustrated below) is for operation with 3 phase 4 wire A.C. mains (200/346—200/415 volts). D.C. output 200/250 volts 6 amps. 3 phase rectification.  
 Price £15.0.0.



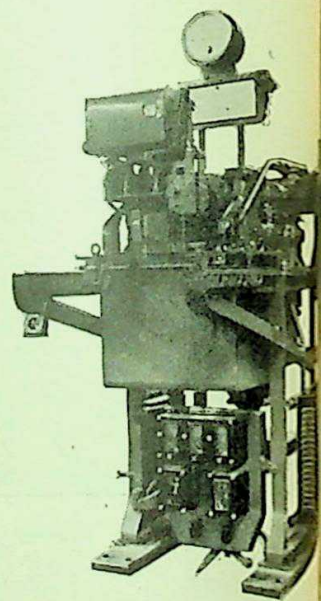
★ POST THE COUPON

★ To PHILIPS INDUSTRIAL  
 Philips Lamps Ltd., 145, Charing Cross Road,  
 London, W.C.2.  
 I am interested in rectification in connection with  
 ..... Please send me particulars  
 of suitable "Oxode" Rectifiers

Name .....  
 Address .....

# RELIABILITY

in a rectifier is essential, more especially when it is used for such an important job as closing oil circuit breakers. Westinghouse Metal Rectifiers need none of the attention and maintenance associated with alternative methods, and will give the same long and efficient service as the actual switchgear. The Westinghouse Metal Rectifier is static, needs no foundations, and, once installed, its reliability makes its presence forgotten.



Reyrolle 300 amps., 11,000 volts  
 breaker operated by the West-  
 inghouse Metal Rectifier mounted on  
 stanchions.

"A.C. to D.C." is the title  
 of our book which fully  
 describes the metal rectifier  
 and its applications.

Write to Dept. E.R. for a  
 free copy.

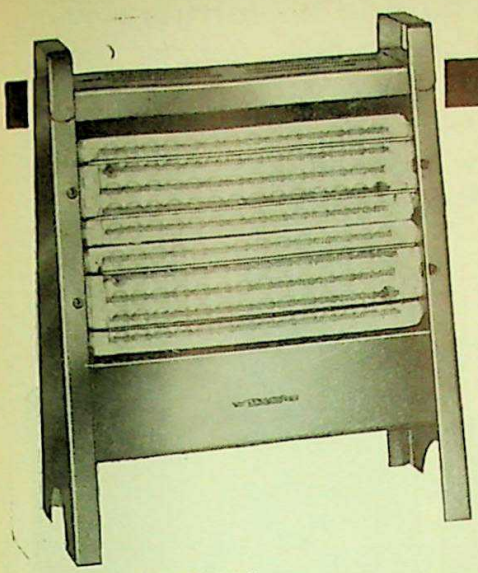


## WESTINGHOUSE

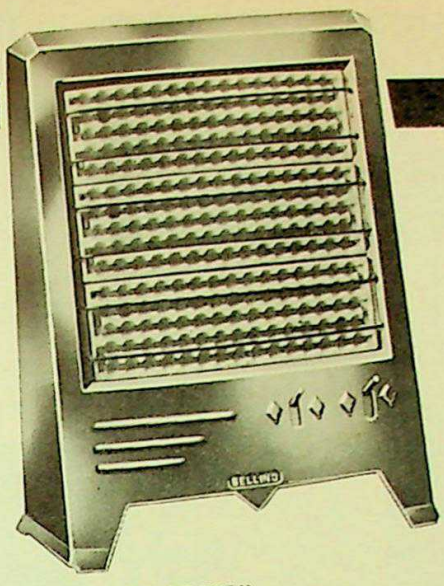
# METAL RECTIFIER

WESTINGHOUSE BRAKE & SIGNAL CO.,  
 82, York Road, King's Cross, London, N.1.

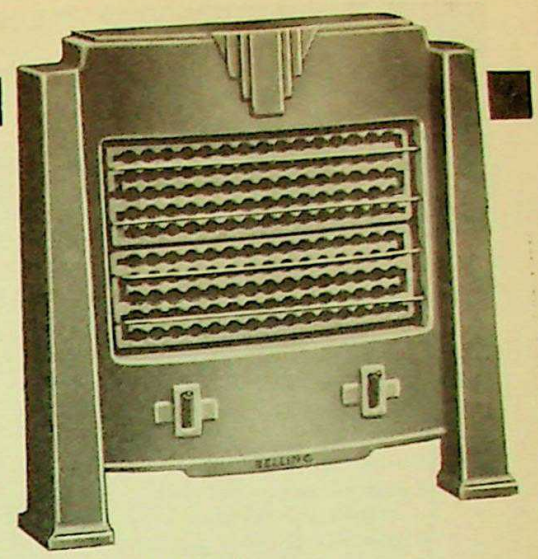




**THE "DINKIE"**  
List No. 602. 2kW. Size.  
Firebar Type 17/6. Projector Type 25/-.  
1 kW. Size, prices from 9/6. Ideal for  
the small modern home. Electrically and  
mechanically sound.



**THE "BEACON"**  
1, 2 and 3kW. Sizes from 18/6.  
Easy to clean and to carry.



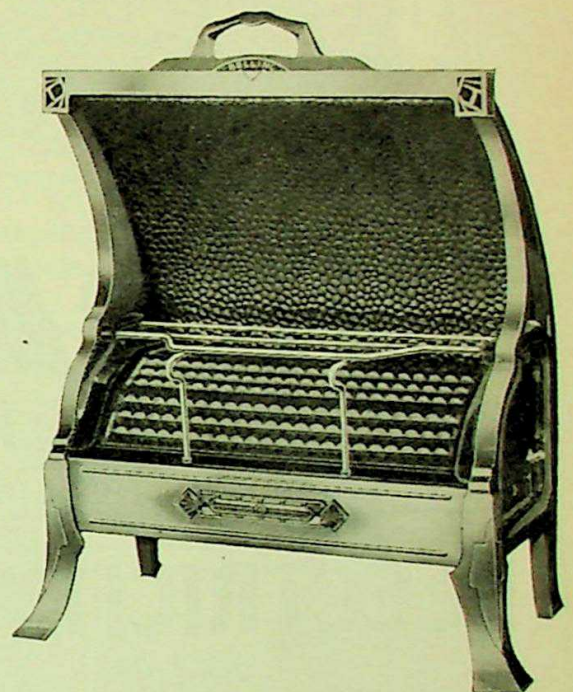
**THE "PILLAR"**  
1, 2 and 3kW. Sizes from 27/6. A high  
class fire, at a moderate price. Available  
in 4 beautiful majolica enamel finishes.

**TAKE ADVANTAGE OF THE  
'BELLING' ADVERTISING**

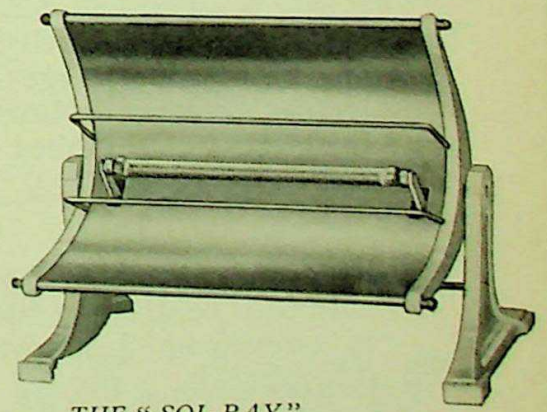
"Belling" National Advertising in the "Radio Times,"  
Catalogues, Shewcards and Window Displays are all  
helping to bring you increased sales this season. Write  
to-day for supplies of the new 64-page Catalogue and the  
new Folders. Also for copies of a Colour Chart which  
shows the various finishes in which "Belling" Fires  
can be obtained.

**STOCK, SHOW and SELL**  
**"BELLING"**  
**ELECTRIC FIRES**  
**AGAIN**  
**THIS**  
**SEASON!**

IMMEDIATE DELIVERY FROM STOCK.



**THE "REFLECTOR"**  
List No. 652. 2kW. Size £2.17.6.  
List No. 653. 3kW. Size £3.5.0.  
Throws out heat over a very  
wide area. Handy for boiling a  
kettle, too!



**THE "SOL-RAY"**  
List No. 331. 1kW. Size 27/6.  
Can be tilted to radiate heat just  
where you want it. Ideal for  
the bathroom, when fixed high on  
the wall.

**BELLING & CO. LTD.** Head Office & Works: Bridge Works, Southbury Road, **ENFIELD, MIDDLESEX.**  
Telephones: Enfield 1123 and Enfield 2820 (6 lines). London Showrooms: 313, Regent Street (1 min. north of Oxford Circus).  
**GLASGOW** **BRISTOL** **BELFAST** **CAPE TOWN**  
200, St. Vincent Street (Central 4015) 2-5, Nelson Street (Bristol 24081, 3 lines) 10, Royal Avenue (Belfast 2846) R. G. Jack & Son, 47-51, Burg Street.



# + or - 6%

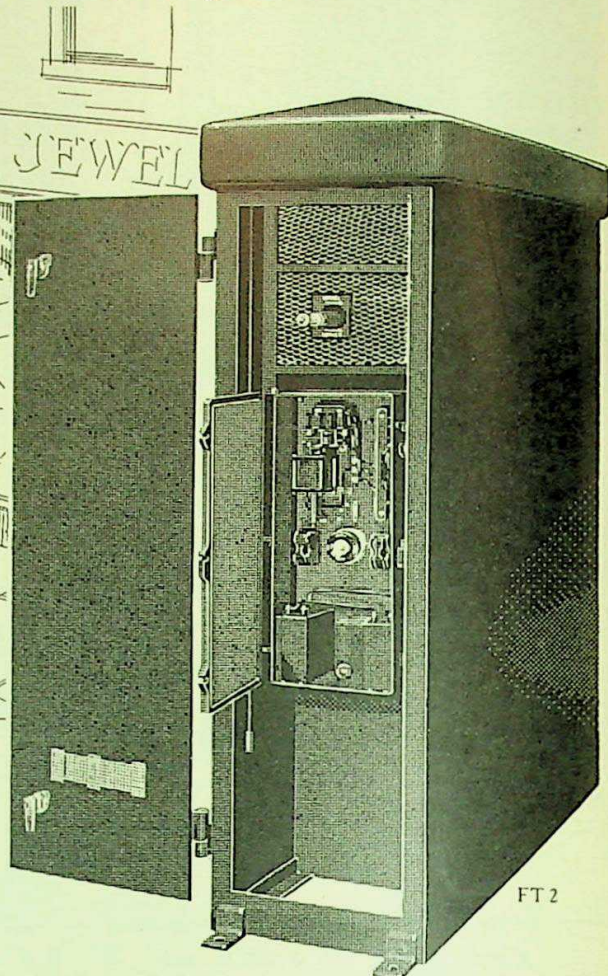
The outstanding features of the New Moving Coil Regulator are:—

- Hand, remote or automatic control.
- Silent operation.
- Split phase motor, low speed, minimum of gearing.
- Simplest control system.
- Short circuit proof.
- Supplied for any voltage.
- Low losses.
- Indoor, pole-mounting or kiosk types.
- Most lightly loaded mechanism.
- No flexible connections or sliding contacts.

The Moving Coil Regulator represents also the ideal means of voltage control for numerous industrial purposes.



Thus far and no further may your distribution voltage be allowed to vary. To keep within these limits you will install the **Moving Coil Regulator**.



## FERRANTI MOVING COIL REGULATOR

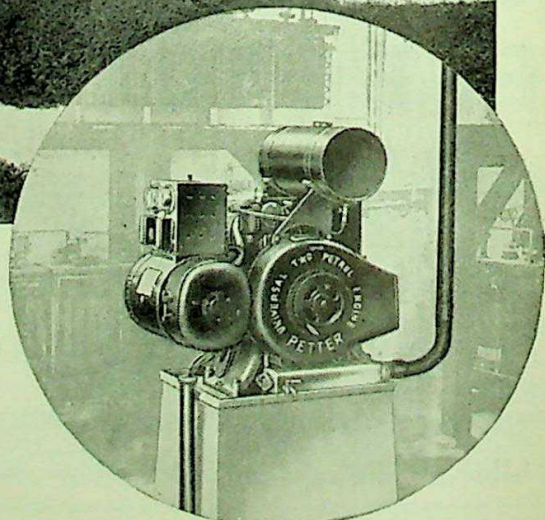
FERRANTI LTD., HOLLINWOOD, LANCS. London Office: Bush House, Aldwych, W.C.2

## ELECTRICITY IN COUNTRY HOMES

Thousands of country homes are beyond the reach of public electricity supply. Why not sell them Petter Self-contained Electric Sets?

The illustration shows a delightful thatched cottage at Nether Compton in Dorset in which is installed a Petter-Light Set.

Petter-Light Sets with or without automatic control are made in sizes from  $\frac{3}{4}$  kilowatt upwards.



**ALL  
ENQUIRIES ARE REFERRED  
TO THE TRADE**

*Please write for catalogue and trade terms.*



**PETTERS LIMITED, WESTLAND WORKS, YEOVIL, ENG.**

London Office: Bush House, Aldwych, W.C.2.



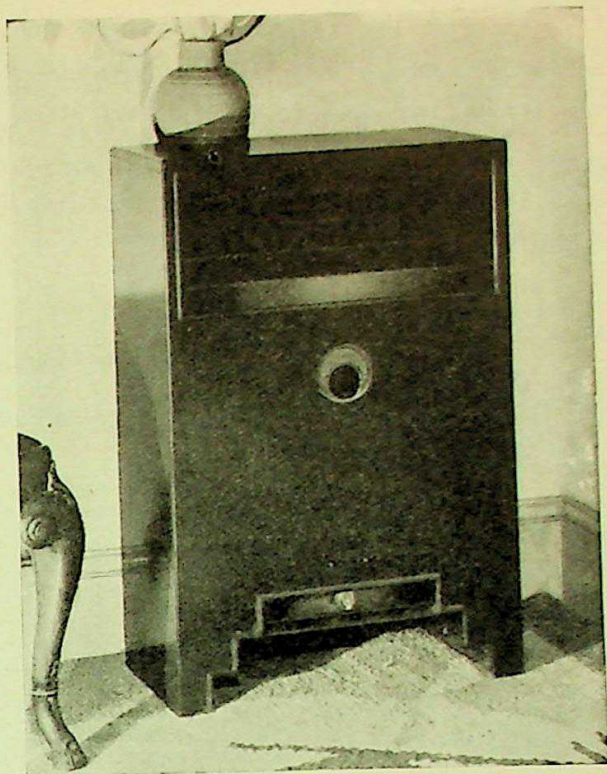
# Automatic— and very decorative

**UNITY** Convectors are ready for a really good season. Three models are entirely automatic. These have a built-in thermostat with an illuminated dial—an attractive as well as an economical feature. Tell the public how to “tune in to comfort” and watch the business grow!

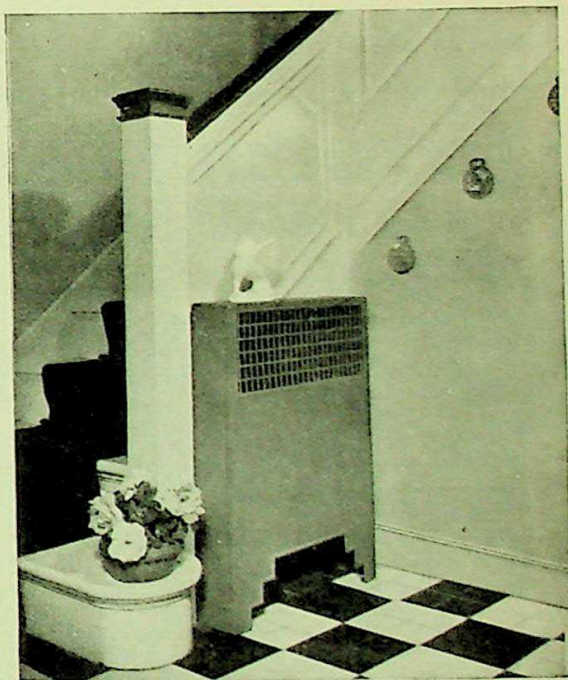
This year Unity introduces in addition, a new, compact Convector without automatic control, that sells at the surprisingly low price of £3 . 6 . 0.

Unity Convectors are particularly suitable for the halls of small and medium-sized houses, where they give a steady flow of warmth. The beautiful new finishes are blue sprayed gold, green sprayed gold, mahogany sprayed gold, or bronze, all without extra charge.

Unity has specialised in the electric warming of every type of enclosure for over a decade. We claim that, with your co-operation, we can warm every building more comfortably, automatically, safely and economically. Our Estimating Office is at your disposal.



• Unity Automatic Convector with self-contained thermostat. From £6 . 0 . 0



• The new lower-priced type of Unity Convector, without thermostatic control. Consumption  $\frac{3}{4}$  unit per hour. From £3 . 6 . 0

*Tubular Heaters • Skirting Panels • Flood Heat Radiators*  
*Panel Radiators • Convectors •*  
*Water Heaters • Thermostats*

# UNITY

UNITY HEATING LTD., UNITY WORKS, WELWYN GARDEN CITY HERTS  
 LONDON OFFICES: VINCENT HOUSE, VINCENT SQUARE, S.W.1. TELEPHONES: WELWYN GARDEN 516, VICTORIA 3118-9



CLASSIFIED INDEX OF ADVERTISEMENTS—(Continued from page xlv)

**Telephones**  
General Electric Co., Ltd.  
Gent & Co., Ltd.  
Standard Telephones & Cables, Ltd.

**Temperature Regulators**  
"Diamond H" Switches, Ltd.  
Elliott Bros. (London), Ltd.

**Terminals & Tags**  
Belling & Lee, Ltd.  
Crystalate.  
Harris, A. E., & Co. (Birmingham), Ltd.

**Time Recorders**  
Gledhill-Brook Time Recorders, Ltd.

**Time Switches**  
British, Foreign & Colonial Automatic Light Controlling Co., Ltd.  
Everett, Edgecombe & Co., Ltd.  
Landis & Gyr, Ltd.  
Nathan & Allen, Ltd.  
Vandam, A., & Co. (1933), Ltd.  
Venner Time Switches, Ltd.

**Tools**  
Armstrong Whitworth Co., Sir  
W. G. (Engineers), Ltd.

**Traffic Signs**  
Brighton Lighting & Electrical Engineering Co., Ltd.  
G. V. D. Illuminators.

**Tramways Supplies**  
General Electric Co., Ltd.

**Transformer Oil Filtering**  
Evans, Adlard & Co., Ltd.

**Transformer Tubes**  
Tube Products, Ltd.

**Transformers**  
British Electric Transformer Co., Ltd.  
British Thomson-Houston Co., Ltd.  
Bruce Peebles & Co., Ltd.  
Brush Electrical Engineering Co., Ltd.  
Electric Construction Co., Ltd. (The).  
Ferranti, Ltd.  
Foster Engineering Co., Ltd.  
General Electric Co., Ltd.  
Heyberd, F. C., & Co.  
Johnson & Phillips, Ltd.  
Metropolitan-Vickers Electrical Co., Ltd.  
Parsons, C. A., & Co.  
Yorkshire Electric Transformer Co., Ltd.

**Tubes (Solid Drawn), Copper, Brass & Condenser**  
Birmingham Battery & Metal Co., Ltd.  
Clifford (Charles) & Son, Ltd.  
Earle Bourne & Co., Ltd.

**Tubes (Steel)**  
Tube Products, Ltd.

**Turbines (Steam)**  
British Thomson-Houston Co., Ltd.  
Brush Electrical Engineering Co., Ltd.  
Metropolitan-Vickers Electrical Co., Ltd.  
Parsons, C. A., & Co.  
Richardsons Westgarth Brown Boveri, Ltd.

**Turbines (Water)**  
Boving & Co., Ltd.  
Gilkes (Gilbert) & Gordon, Ltd.

**Vacuum Cleaners**  
British Electric Domestic Appliances, Ltd.  
Sturtevant Engineering Co., Ltd.

**Ventilation Plant**  
Artie Fuse & Electrical Co., Ltd.  
General Electric Co., Ltd.  
Ozonair, Ltd.

**Wall Nails**  
Snow, T. F.

**Wall Plugs**  
Rawplug Co., Ltd.

**Wash Boilers**  
Amplec, Ltd.  
Burnley Components, Ltd.  
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Nathan & Allen, Ltd.  
Revo Electric Co., Ltd.

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Aidas Electric, Ltd.  
Ferranti, Ltd.  
General Electric Co., Ltd.  
Heatrae, Ltd.  
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Low, Archibald, Electrics, Ltd.  
Nathan & Allen, Ltd.  
Revo Electric Co., Ltd.  
Santon, Ltd.

**Water Level Indicators (Remote)**  
Elliott Bros. (London), Ltd.  
Gent & Co., Ltd.

**Water-power Engineers**  
Boving & Co., Ltd.

**Welding Plant**  
British Oxygen Co., Ltd.  
Laurence, Scott & Electromotors, Ltd.  
Philips Industrial.  
Westminster Engineering Co.

**Wire (Copper, Bare)**  
Johnson (Richard) & Nephew, Ltd.  
Smith (Frederick) & Co.  
Symonds, R. H., Ltd.  
Whitcross Co., Ltd. (The).

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A.C.E.C. (Ateliers de Construction Electriques de Charleroi).  
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Callender's Cable & Construction Co., Ltd.  
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Derby Cables, Ltd.  
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Foster Engineering Co., Ltd.  
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General Electric Co., Ltd.  
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Henley's, W. T. Telegraph Works, Ltd.  
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Johnson, R., Clapham, & Morris, Ltd.  
Liverpool Electric Cable Co., Ltd.  
London Electric Wire & Smiths, Ltd.  
Mersey Cable Works, Ltd.  
Pirelli-General Cable Works, Ltd.  
Saxonia Electrical Wire Co., Ltd.  
Siemens Bros. & Co., Ltd.  
Telegraph Constr. & Maintenance Co.  
Union Cable Co., Ltd.  
Wandelside Cable Works, Ltd.  
Ward & Goldstone, Ltd.

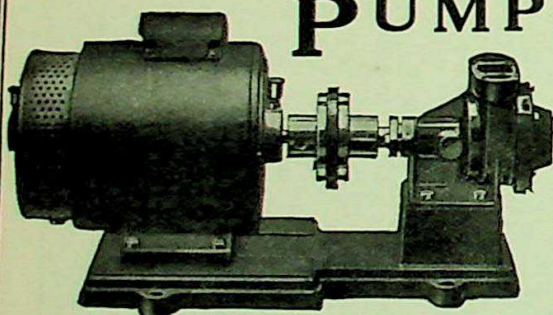
**Wire Guards**  
Carter, H. W., & James, Ltd.

**Wiring Systems**  
Bowker, S. O., Ltd.  
Key Engineering Co., Ltd.

"CLASSIFIED" ADVERTISEMENTS

relating to Situations, Articles For Sale and Wanted, &c., appear on pages commencing Supplement 21.

# ROTOPLUNGE PUMPS



For WATER, PETROL, OILS, TAR, MOLASSES

ALL BRITISH PLUNGER PUMPS WITH ROTARY MOTION AND NO VALVES.

CAPACITIES 8 TO 50,000 GALLS. PER HOUR. SUITABLE FOR HEADS UP TO 150 FEET. 25 FEET SUCTION WITHOUT PRIMING.

Direct coupled sets with electric motors or engines. Vertical sets for suspending in deep wells. Portable sets or pumps only.

Automatic Float Switchgear supplied.

ON ADMIRALTY LIST, AIR MINISTRY, WAR OFFICE, ETC.

ROTOPLUNGE PUMP Co., Ltd., Opposite St. James' Park Station. Phone: VICTORIA 4935. Grams: "ROTOPLUNG."

# HANDI-SPRAY

A low-priced portable Spray-Paint Outfit

This compact, portable Spray-Paint Outfit, which can be run from an ordinary lighting point, will considerably cut down the cost of finishing Radiators, Stoves, Meters, etc. It is also ideal for interior decoration work.

Write for full details of our wide range of up-to-date Spray Painting Plant for all purposes.



B. E. N. PATENTS LTD., Gorst Road, Park Royal, London, N.W.10 Telephone: Willesden 2066 (4 lines).



BELL SIDE-CONTACT TUBULARS IN SPECIAL LINE REFLECTORS ALWAYS PRODUCE SHADOW-FREE LIGHTING THROUGHOUT. ALWAYS USE BELL Maxtrip 2 LAMPS FOR PERFECT CORNICE LIGHTING.

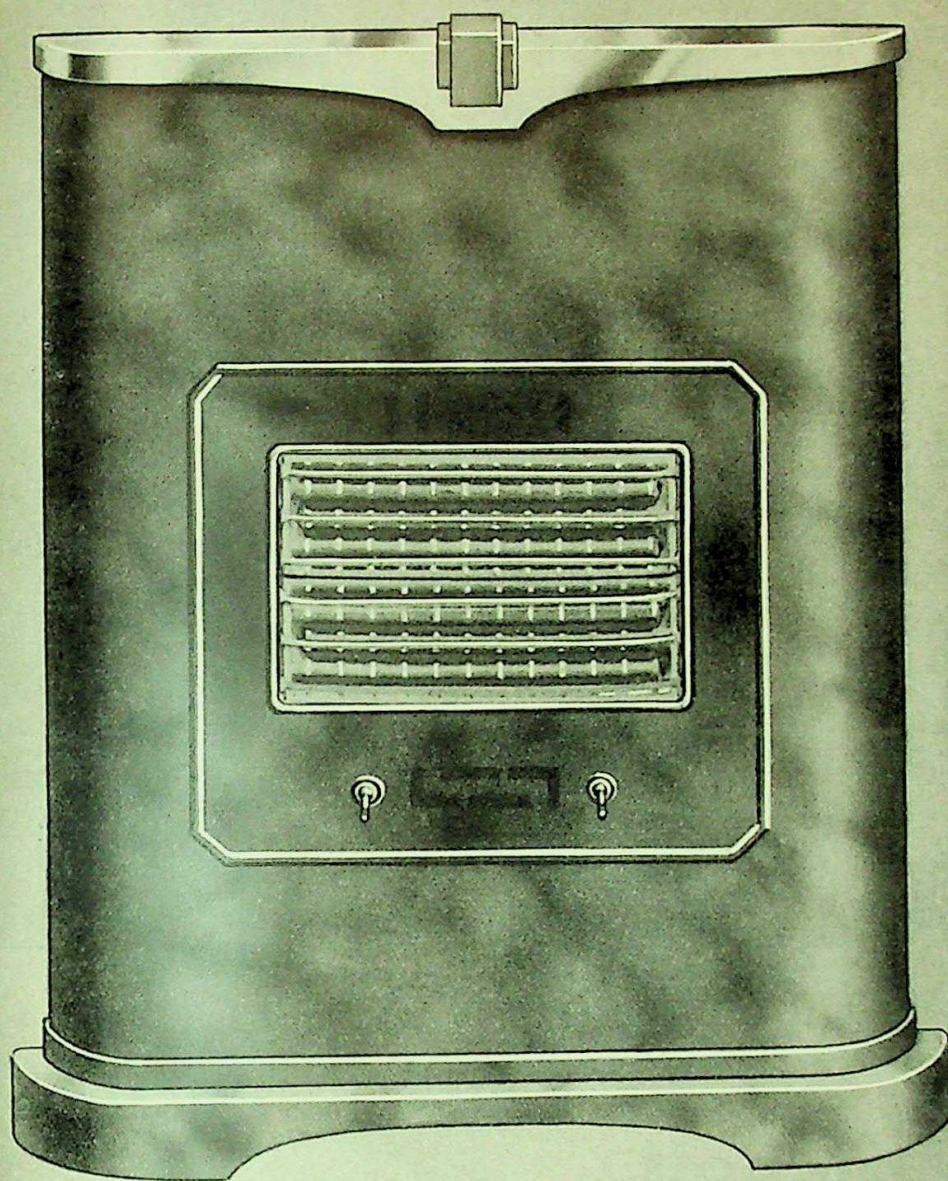


BRITISH ELECTRIC LAMPS LIMITED

SPENCER HILL RD., WIMBLEDON, S.W.19. 'Phone: Wimb. 544  
BELL HOUSE, BERNERS PLACE, W.1. 'Phone: Museum 830  
43, CHURCH STREET, BIRMINGHAM. 'Phone: Central 630  
2, DOLEFIELD, BRIDGE STREET, MANCHESTER. 'Phone: Blackfriars 245  
12, ELTON SQUARE, NEWCASTLE. 'Phone: Newcastle 245



The 'DORSET' Price £3'3'0



# ONE of the NEW *Creda* 1935 - 6 FIRES

A distinctive fire with all-metal surround complete, this model is ideal for permanent installation.

With new models and old and tried favourites, with new finishes and a superb full-colour list, Creda have set out to improve on last year's record season. Let Creda help **you** to a record season, too.

*This and over thirty other designs may be seen in the FULL COLOUR LIST available from Simplex Electric Company Limited. Head Office: Empire House, Gt. Charles Street, Birmingham, and Branches.*

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## **“My window earned its keep last week, Mr. Russell . . . . .”**

—and it looked fine. I must compliment you on your window display this year. But to get down to brass tacks, my Crompton sales soared. Mind you, I expected an increase but nothing so big as the turnover I’ve done.”

“Well, Mr. James, you see you’ve tied up with the Crompton sales plan by putting in that window display. Thousands of people in this town are seeing the Crompton advertisements in the national dailies and your local paper and are being impressed. Your shop is the buying opportunity and the window display is the signal that shows where Crompton lamps are stocked. You remind the prospect at the critical moment when he *can* buy.

Thank you, Mr. James. I’ll mark this order urgent.”

# **CROMPTON LAMPS**



# PARAHEAT



## PREMIER PARABOLIC REFLECTOR FIRES

This is Premier's contribution to the 1935-6 Fire Season—a range of Parabolic Reflector Fires, unrivalled in Design, Finish, Value, and Fine Quality. Many unique features are incorporated and the prices are particularly attractive at 21/- and upwards. Particular attention is drawn to the simplicity of the Premier rod element—the most efficient and dependable heat distributor of its kind.

Write for 1935-6 Catalogue.

Illustrations show—

1. "The Paraglow" (5301) £1 1 0.
2. "The Parabeam" (5311-2) £1 19 6.
3. "The Maxwell" (5352-4) from £2 5 0.
4. "The Bredon" (5355-6) £2 15 0.

Large illustration shows "The Paralux" (5315-6) £4 19 6.

**PREMIER ELECTRIC HEATERS LIMITED, BIRMINGHAM, 9.**

TELEPHONE: BIRMINGHAM, VICTORIA 2104 (4 LINES)

TELEGRAMS: FAHRENHEIT, BIRMINGHAM

London Office: 203 Bush House (Centre Block), Aldwych, W.C.2.

Telephone: Temple Bar 2903.



# This is typical of what is going on...



Minutes of  
City of.....

March, 1935.

"The recommendation of Electricity Committee as to acceptance of Messrs. Wootton's tender for Meter Boards together with Report from Engineer and Manager of the Electricity Dept., stating that although the tender recommended for acceptance was not the lowest price, it offered the best value for the tendered price."

Adopted

We have always said that Wootton Meter Boards are *not* the cheapest. But we have said too, that they *are* the best—and this is a simple truth. Since "truth will out" we are glad to record that many friends who rightly felt compelled to try cheaper goods, are now returning and *staying* with us.

Buy Wootton and Buy Wisely.

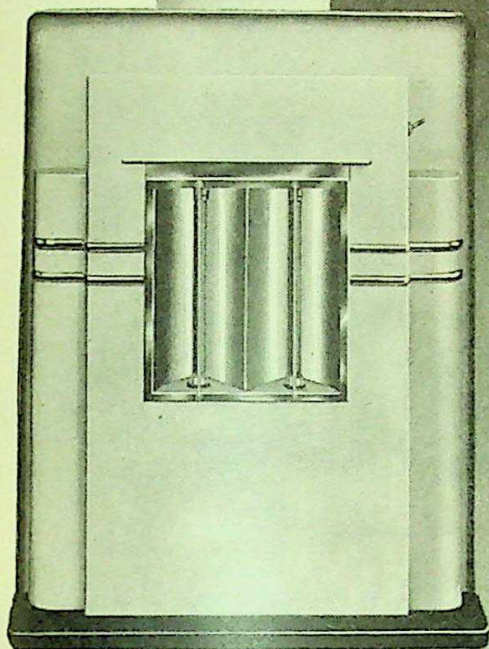


WOOTTON & CO. LTD. • ALMA WORKS • PONDERS END • MIDDLESEX



# G.E.C.

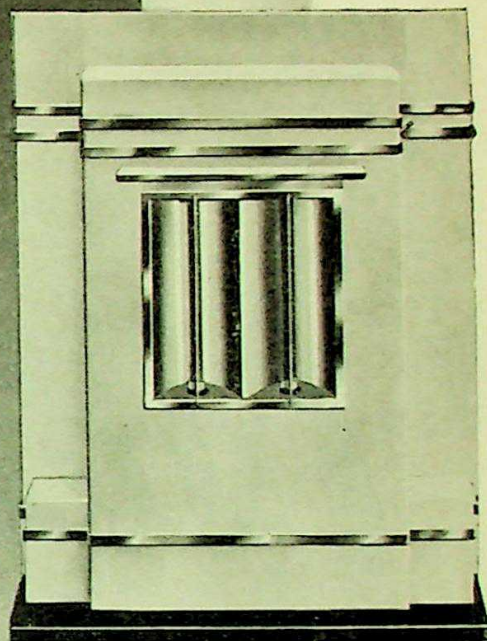
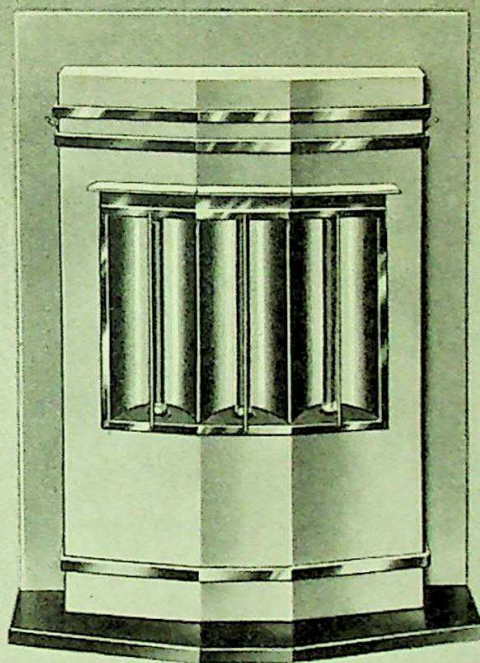
## ELECTRIC HEATING



D. 2555. Finished Matt Silver (or Matt Copper) and Black with Chromium Plated facings. 2000 watts. Price £3 19 6.

These new MAGNET Electric Fires are designed for standing in the fireplace so as to cover completely the existing grate. Fitted with Reflector elements.

D. 2557. Finished Matt Silver (or Matt Copper) and Black with Chromium Plated facings. 3000 w. Price £4 19 6



D. 2554. Finished Matt Silver (or Matt Copper) and Black with Chromium Plated facings. 2000 watts. Price £3 19 6.

Three New Screen Models from the Latest Range of  
"MAGNET"

# ELECTRIC FIRES



# “Taking Magi-Coals to Newcastle”



- A consignment of MAGICOAL Fires leaving our Works for Newcastle. MAGICOAL Fires go all over the world.

## BERRY'S ELECTRIC LTD.

TOUCHBUTTON HOUSE,

85 & 86, NEWMAN STREET, OXFORD STREET, LONDON, W.1.

Telephone: MUSEUM 6800 (9 lines).

Works: LONDON—Wembley.

BIRMINGHAM—Hall Green.

Branches: MANCHESTER: 5, Deansgate.

NEWCASTLE-ON-TYNE: 22, Oxford Street.

Sole Agents for Scotland: WOOD & CAIRNS, LTD., Edinburgh, Glasgow and Dundee.

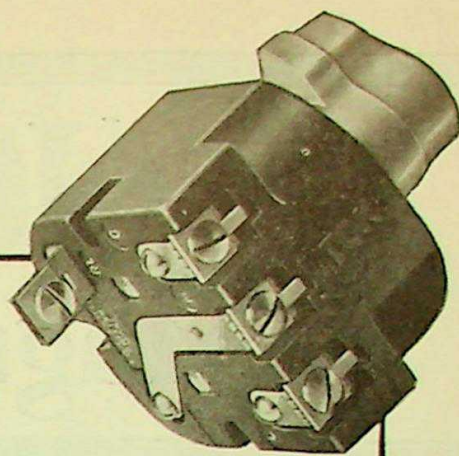


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For almost every cooking, heating and lighting purpose—simple or complicated—there is a Tok switch. Robust and compact, Tok switches are unfailing and positive in action—thus ensuring **safe control**. Use Tok switches for your product. Write today for full details.

# TOK

## SWITCHES



Any number of these Kubic Cooker Switches can be mounted in line together. British made from the best materials, they will stand continual service.

### SAFE CONTROL

TOK SWITCHES LTD., BLOOMFIELD ROAD, WOOLWICH, S.E.18

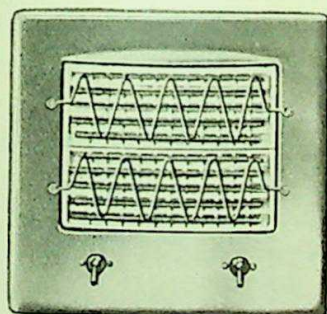
TEL: WOOLWICH 2345

# FALCO

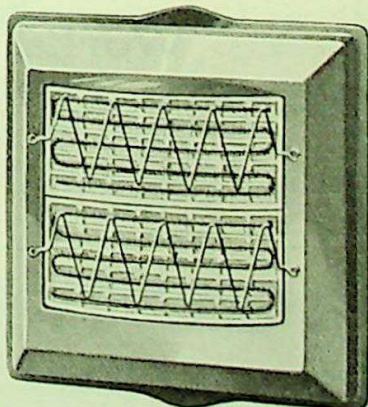
## ELECTRIC FIRES

### New Designs

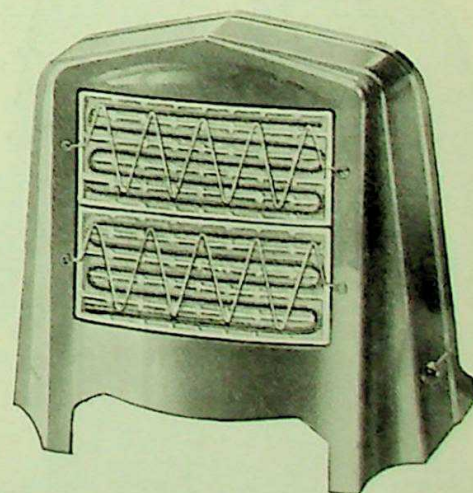
A large selection of models in the most attractive finishes now available for 1935-36



No. 731  
Wall Fire.



No. 735  
Wall Fire.



No. 700  
Portable Fire.

## THE FALKIRK IRON CO. LTD.

WORKS: FALKIRK.

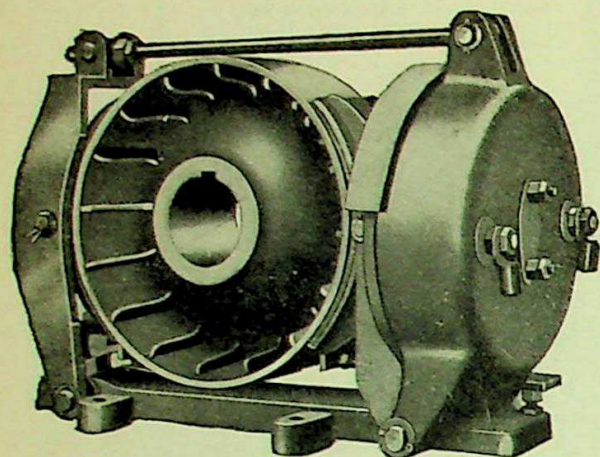
LONDON:  
Mortimer House,  
Mortimer St., W.1.

MANCHESTER:  
1, Cathedral House,  
Long Millgate, 3.

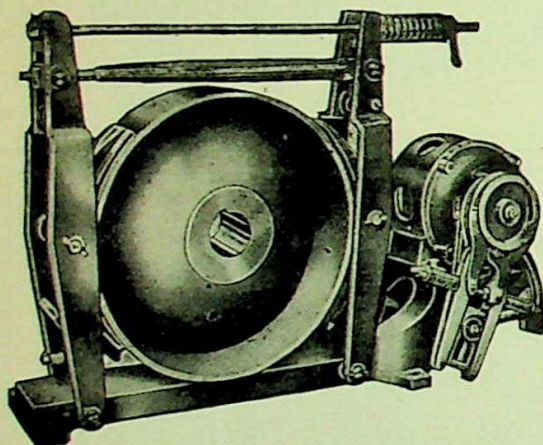


# 'IGRANIC'

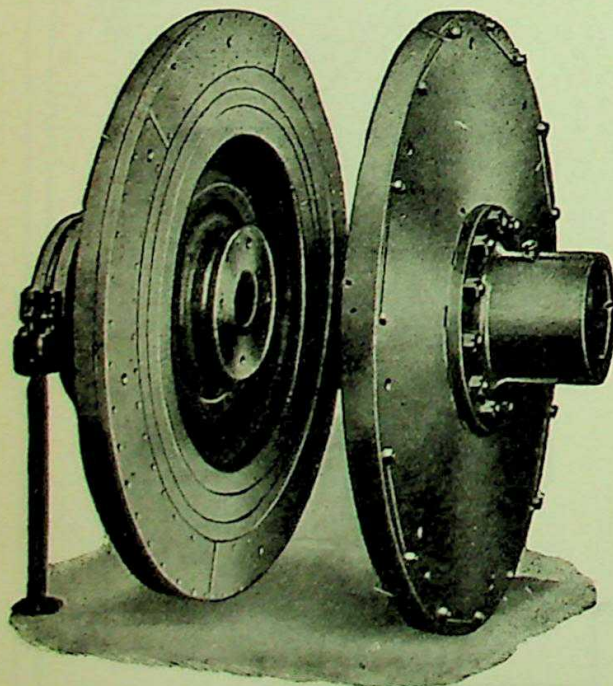
## Magnetic Devices



No. 1700 type M Magnet Operated Brake  
for Direct Current Service.



No. 1705 type "RS" Motor Operated Brakes  
for Alternating Current Service.



Exploded view of Igranitic Magnetic Clutch, showing  
armature member at right and field member at left.  
Around the outer edge of the face of the field member  
is the friction lining.

IN addition to the well-known range of Igranitic Electric Controlling Devices the Igranitic Electric Company have a range of Magnetic Devices which include magnetically-operated brakes, solenoid-operated brakes, magnetic clutches, magnetic separators, etc.

Type "M" Brakes are quick acting, dependable, long lived and adaptable. These brakes are used on cranes, hoists, bridges, etc. A few of their outstanding features are—Direct magnetic action—Short brake shoe stroke—108° braking surface—Simplicity—Accessibility—Robust construction—Weatherproof.

Type "RS" motor-operated brakes for alternating current service have no destructive hammer blow. Apply brake without shock. Made in sizes suitable from 1—250 h.p.

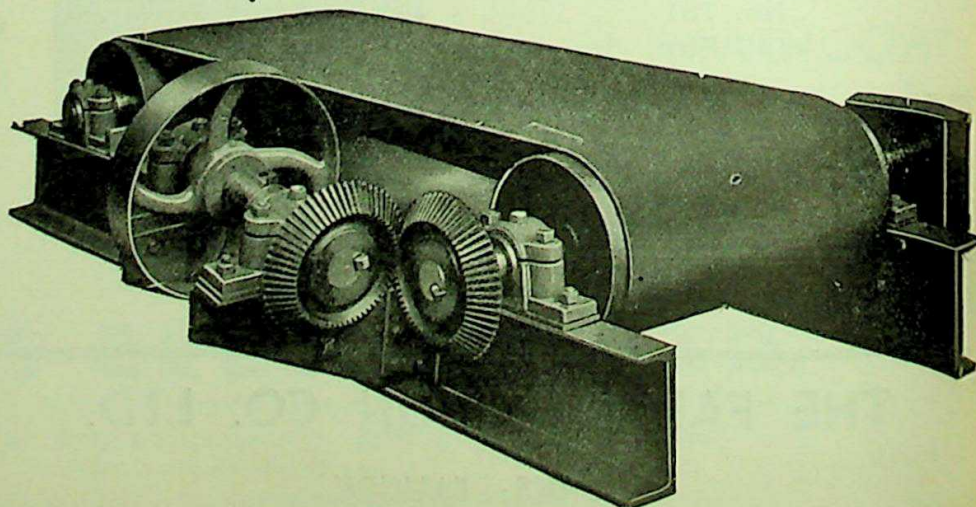
Magnetic Clutches permit the starting of heavy loads without heavy initial power consumption. The simplicity of Igranitic Clutches—no toggles, levers, sliding parts or links—gives trouble-free performance during years of service.

Magnetic Separators. Igranitic Magnetic Separator Pulleys are essential where it is necessary to continuously remove magnetic content from non-magnetic bulk material. Magnetic Separator Pulleys are used in numerous industries to protect valuable crushing and grinding machines by removing stray iron and steel which would cause considerable damage to the crusher.



Works BEDFORD

Branches: Bristol, Birmingham, Glasgow,  
Leeds, Manchester, Newcastle.



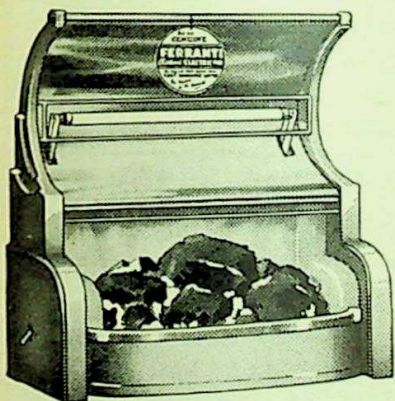
No. 1600. Magnetic Separator.



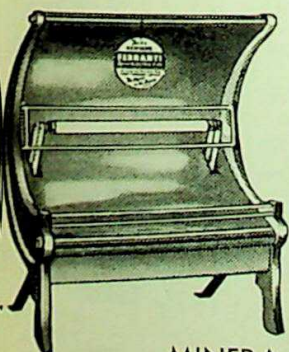
**There be many Caesars  
ere such another Julius**  
—Shakespeare



GLOWERA  
Models from 65/-



FLAMERA 45  
Price - £4. 10s.



MINERA  
Models from 19/6

So many Cæsars, yet none that took his name could ever attain to his virtues of statesmanship and generalship.

In our commercial way, we see a parallel here. There are so many Ferranti-type fires available to you to-day, but none that combines the virtues of the First, the original Ferranti reflector-type fire. So many Cæsars—so many frail imitators.

In the Ferranti Fire you have a superlative heating unit to offer your customers. Its models are handsome . . . attractive. They are robustly constructed . . . to satisfy with long life. An entirely original conception, Ferranti Fires are beyond reproach.

**FIRST, FOREMOST, HOTTEST** . . . imitable only in appearance, certainly not in efficiency. Put your faith in Ferranti every time and so never disappoint a customer.

# **FERRANTI** *Radiant* **ELECTRIC FIRES**

There are 40 models from 19s. 6d. Please write for lists.

**FERRANTI LTD., HOLLINWOOD, LANCS.**

London Office: BUSH HOUSE, ALDWYCH, W.C.2.



This Red-and-Black Tag is now attached to every genuine Ferranti Fire.



Telegrams: Patella, London.

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LEAD COVERED  
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DELIVERIES FROM STOCK.

CABLES, SWITCHGEAR, STARTERS, "RAPPER" TOOLS, "QUEAD"

FIRE  
DIMMERS  
HAMMERS

ALL MANUFACTURED BY US IN LONDON.

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Cable Works: WEMBLEY, M'SEX.

Codes: A.B.C. and Bentley's.



(GENUINE AMERICAN.)

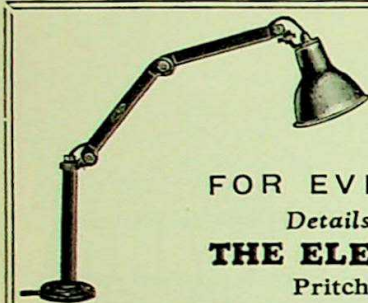
SHEETS, RODS, TUBES, BUSHES, DISCS, WASHERS.

SEND YOUR ENQUIRIES FOR ABOVE TO

AUSTIN & HAYES, WOODSIDE WORKS,  
HIGHGATE, LONDON, N.6.

"Austayes, Crouchway, London."

Telephone: Tudor 1000.



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ADJUSTABLE  
FITTINGS

FOR EVERY APPLICATION

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ACTUAL MAKERS OF  
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Makers of Imitation Candles in all Materials.  
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Brass Accessories, Holders, etc., for Lighting Fittings.  
THE BELGRAVE ELECTRIC CO. LTD.

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Pioneers in the Moulding Industry  
from the beginning of  
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THERMO-PLASTIC & SYNTHETIC RESIN MOULDINGS

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THE MOST EFFICIENT WATER RING  
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—types of Standard—

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5 amp. B.E.S.A.

Sockets &amp; Switch Sockets

(2 PINS).

BROWN BAKELITE, SOLID BRASS PARTS (No Stampings).

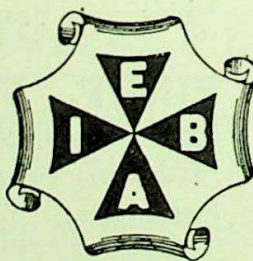
Illustration shows how any number of  
plugs (round or flat) can be used.  
GRAFTON ELECTRIC COMPANY,  
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WHITE Electrical  
Instrument Co., Ltd.

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On NOVEMBER 26th  
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Supper, Running Buffet, Cabaret and  
Jack Payne's "Cecilians" up to 11.40.

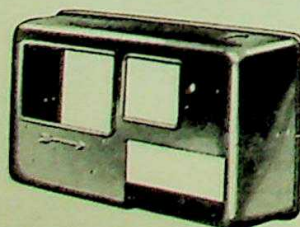
At 11.45 JACK PAYNE AND HIS BAND.

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(from 25 to 10,000 cycles)

FERRANTI Constructional Amplifiers  
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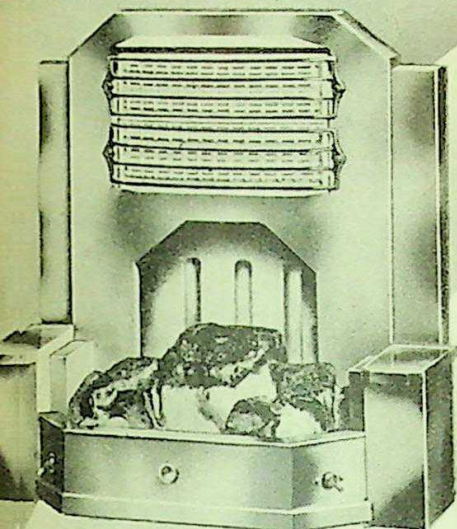
Telephone: COVENTRY 3910



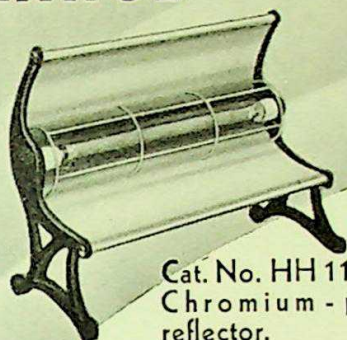
# ENGLISH ELECTRIC<sup>®</sup>

## DOMESTIC ELECTRIC PRODUCTS

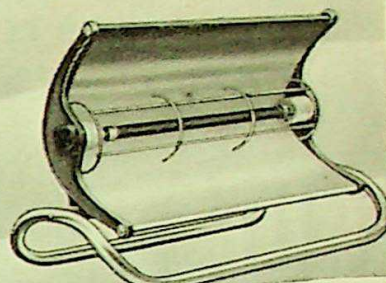
### EXAMPLES FROM THE RANGE



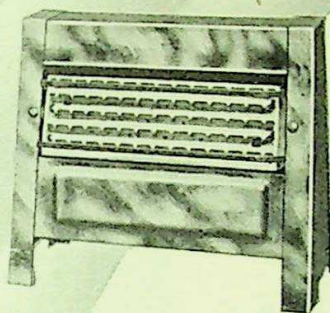
**COAL EFFECT FIRE**  
Cat. No. HH150. 2kw.  
Finished either in  
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bronze.



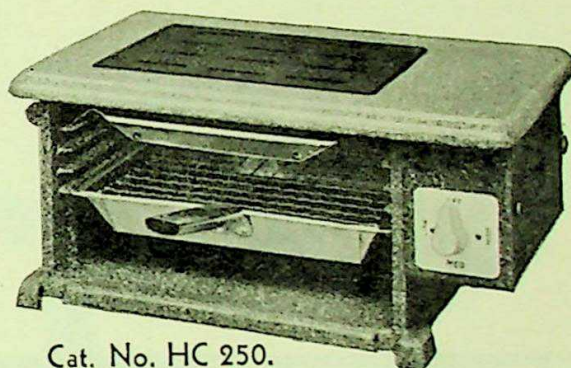
Cat. No. HH114. 1kw.  
Chromium-plated  
reflector.



Cat. No. HH113. 1kw.  
Chromium-plated  
reflector and tubular  
frame.



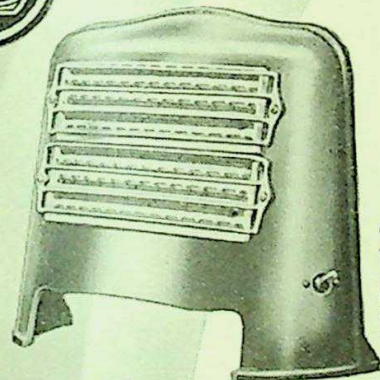
Cat. No. HH140. 1kw.  
Made also in 2 kw.  
size.



Cat. No. HC250.

### BREAKFAST COOKER PRICE 58/6

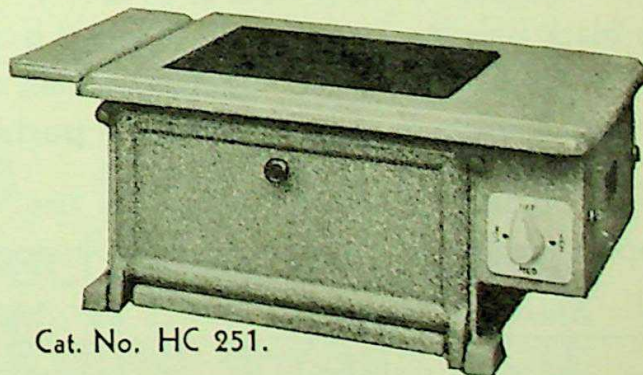
Extra for drop down door 3/-  
Extra for hob-extension 2/-



Cat. No. HH102. 2kw.  
Vitreous Enamel  
Finish. Made also  
in 1 and 3 kw. sizes.

**FIRES** PRICES FROM 8/11  
THE RANGE OF 'ENGLISH ELECTRIC' FIRES  
COMPRISE: PORTABLE—REFLECTOR—INSET—  
MANTEL SURROUND—WALL-TYPE SURROUND  
—COAL EFFECT—

Made in a variety of designs  
and artistic colours.



Cat. No. HC251.

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**THE ENGLISH ELECTRIC CO. LTD.**  
DOMESTIC, HEATING & COOKING APPLIANCE, WORKS,  
**BRADFORD.**

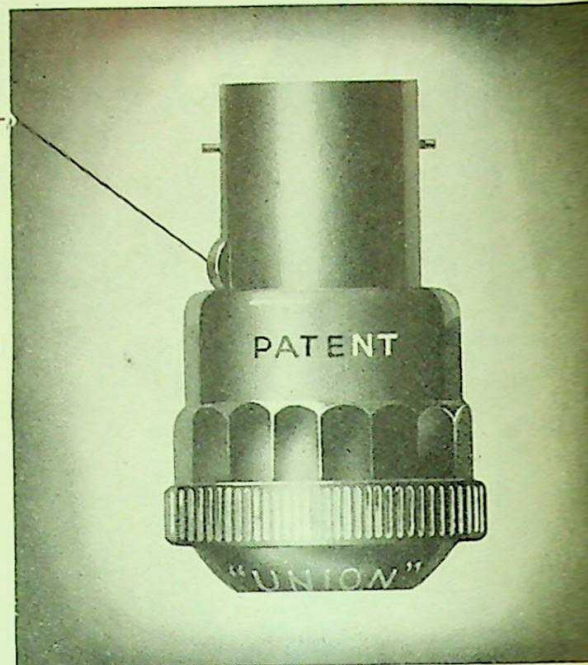


# "UNION" ADAPTER

TO CONVERT—

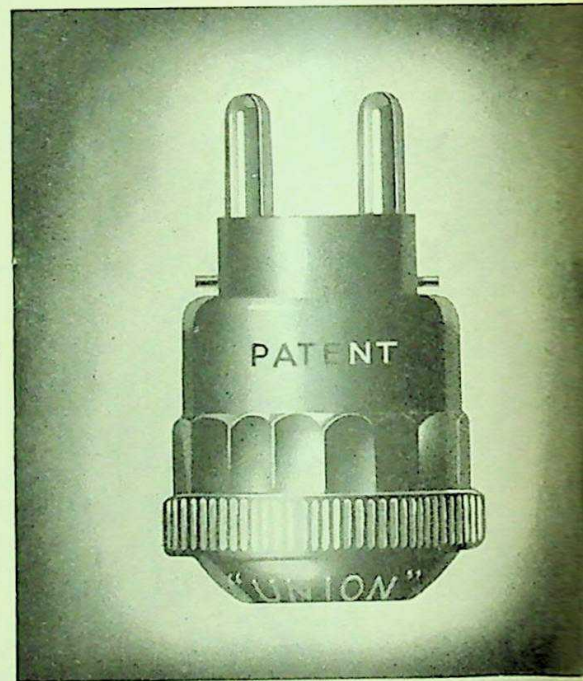
PRESS IN CATCH AND SLIDE DOWN

**FROM B.C. ADAPTER**



ACTUAL SIZE

**TO A TWO-PIN PLUG**  
5 AMP B.S. GAUGE



This black bakelite Two-Purpose Adapter is a single unit in itself, and is far superior to the makeshift patterns consisting of two separate parts.

Safety from shock is ensured in use, and the adapter is both compact and neat in appearance.

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FURSE WHOLESALE LTD., Traffic Street, Nottingham, or Nottinghamshire, Derbyshire, Leicestershire, and Lincolnshire.

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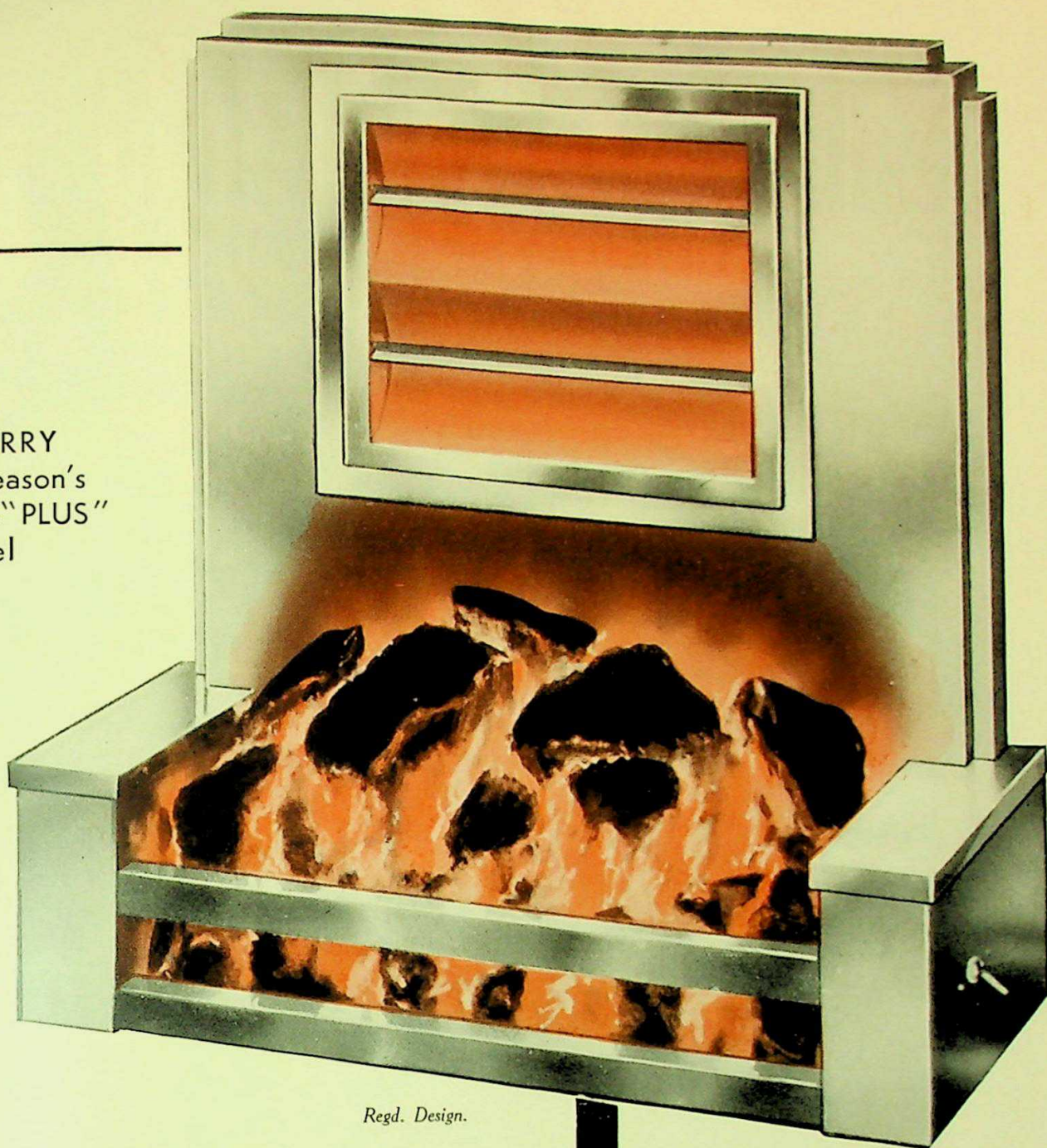
| Catalogue Number | Price per dozen |
|------------------|-----------------|
| 142              | 12/- (Subject)  |

For full particulars, ask for Leaflet E1.1

Advt. of A. P. Lundberg & Sons, Ltd. - 477/489, Liverpool Road, - Holloway, - London, N.



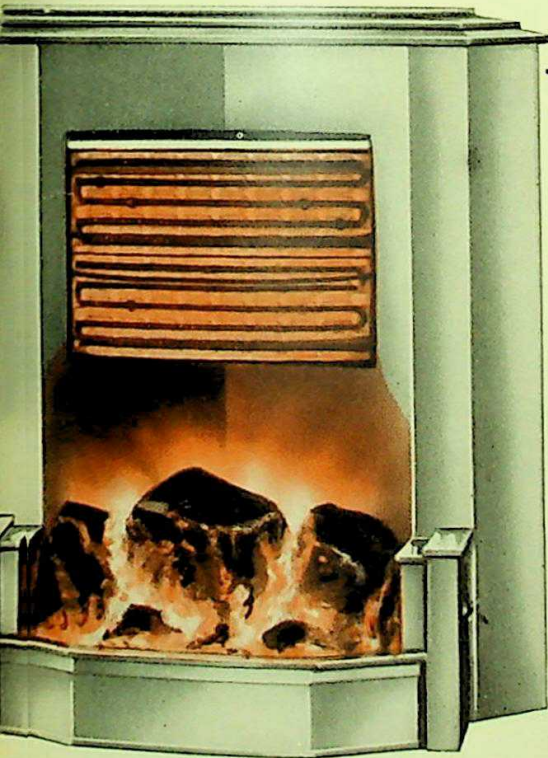
The  
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A New Season's  
MAGICOAL-"PLUS"  
Model



Regd. Design.

Regd. Design.

H. H. BERRY'S BRITISH  
AND WORLD PATENTS



The  
VILLABERRY  
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Models are now  
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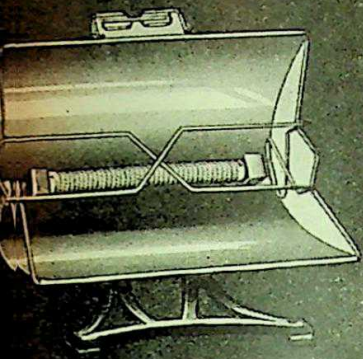


By appointment to



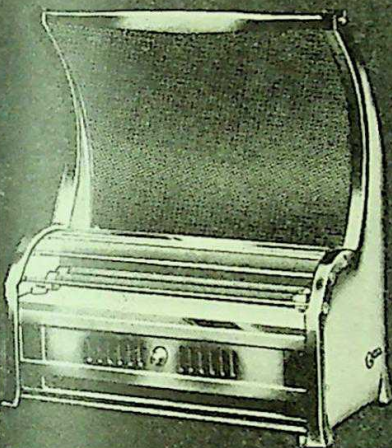
H.M. the King.

# The new season's 3 best sellers

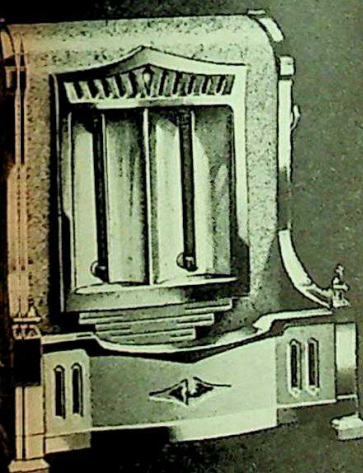


The "BEACON"  
An efficient Reflector Fire of neat appearance and exceptional value. The

parabolic reflector may be swivelled to project the heat in any direction. Finished in Chrom. Plate and Carrontine Enamel.



The "SUNGLO"  
Combines a bright and cheerful glow with the distribution of radiant warmth over an exceptionally wide angle. Finished in Art Silver and Chromium Plate.



The "LOUNGE"  
A model of elegant design, combining a charming floodlight effect with powerful radiant heat. Finished in Chromium Plate and Carrotine Enamel.

"BEACON," "SUNGLO" and "LOUNGE"

are the latest models from the popular Carron range of electric fires. All three are in heavy demand this season. They attract and satisfy because of their

- *Modern Design*
- *Powerful Heating Elements*
- *Absolute Reliability and Beautiful Finish*

These three Carron fires, already firmly established in popular favour, are increasing business wherever they are shown. Let them be seen in your showrooms, and enjoy the profits of quick sales.

# CARRON

## ELECTRIC FIRES

**CARRON COMPANY.** Works: CARRON, FALKIRK

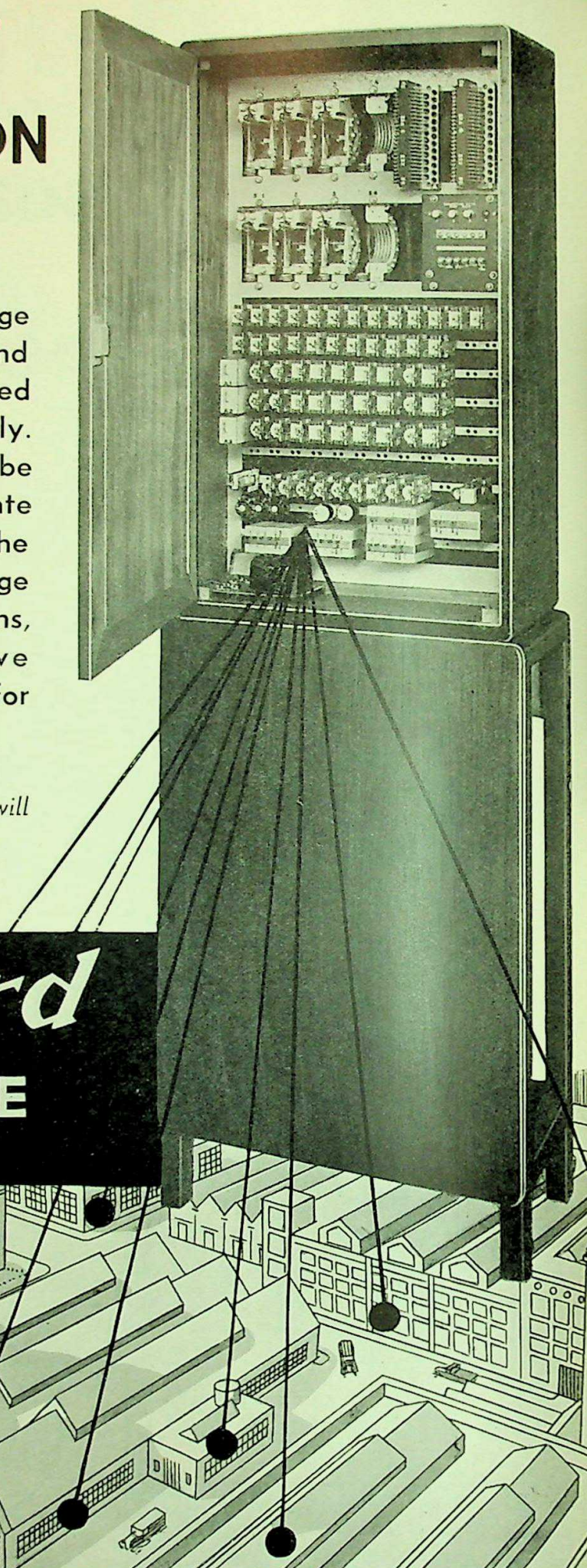




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**T**HIS private automatic exchange has capacity for 25 lines, and can be supplied fully equipped or for 10, 15, or 20 lines only. Four connecting circuits can be provided, allowing four separate and secret conversations at the same instant. The exchange operates direct from A.C. mains, or, if so desired, alternative equipment can be supplied for use with D.C. mains.

*Please write for fuller particulars which will  
be sent by return of post.*



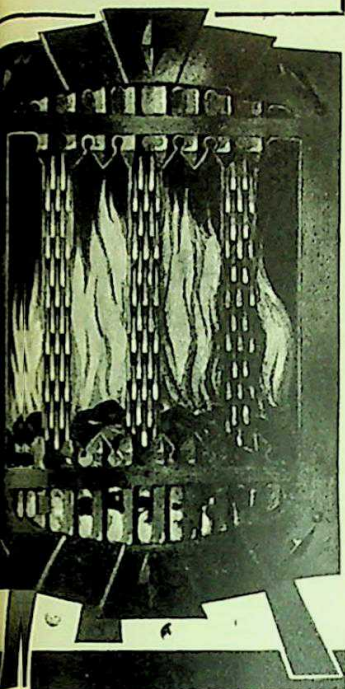
**Standard**  
AUTOMATIC  
TELEPHONE  
EXCHANGE

*Advertisement of Standard Telephones and Cables Limited, New Southgate,  
(Telephone: Palmers Green 1101.)*



# AIRFLOW WARMTH

## 5 EFFECTS IN ONE FIRE



is an exclusive feature of Artie Electric Flame-Fires and Convector which places them far ahead of any other methods of heating by Electricity.

### ELECTRIC FLAME-FIRE

It is easier to sell Airflow Electric Flame-Fires, they are artistic, and the flickering *radiant heat flames* cannot be obtained in any other fire. Apart from this they provide Airflow Warmth which is essential if economical and high heating efficiency is to be obtained. Retails at 79/6 1 to 2 K.W.

Write for full details of Artie Electrical Flame-Fires and/or Artie Convector to-day!

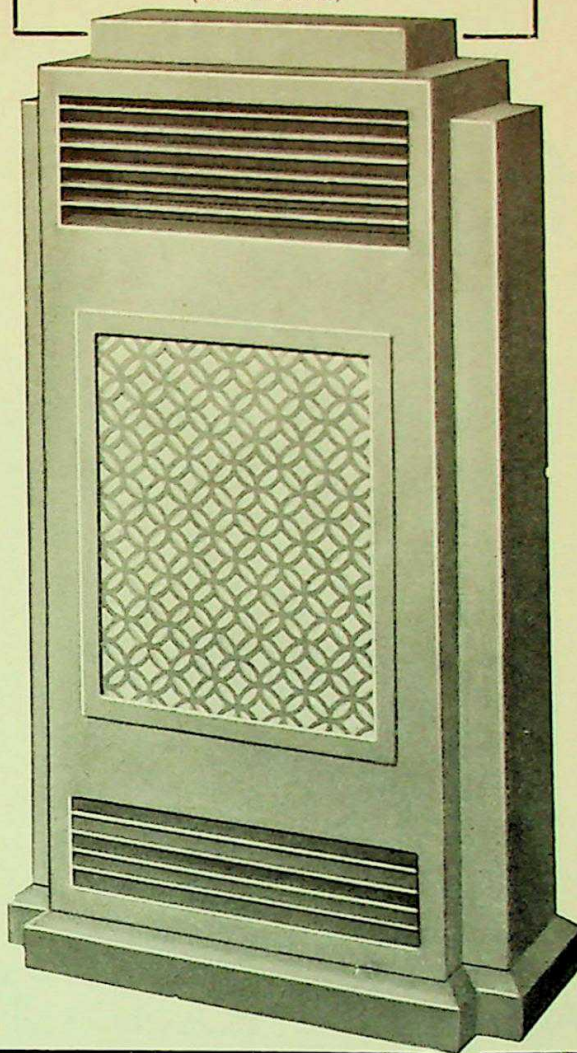


'Phone:  
Birtley 61.

'Grams:  
"Artie" Birtley.

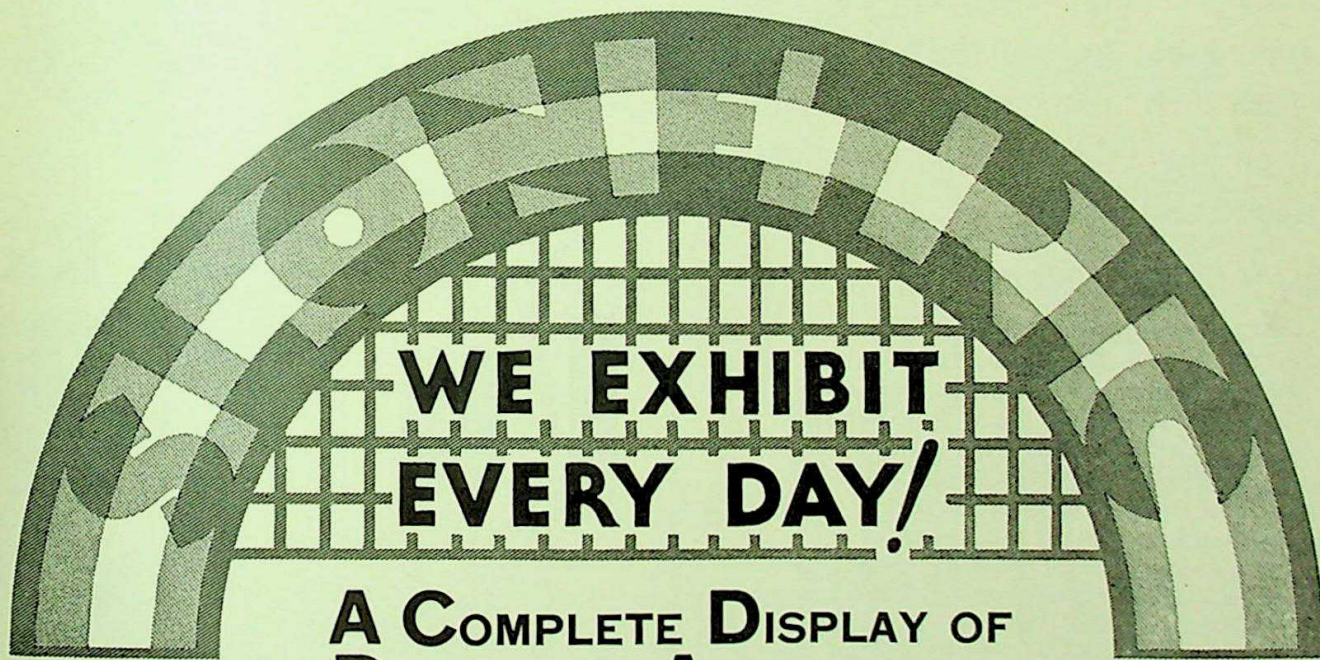
## THERMO Airflow CONVECTOR

(Artie Patents)



### THERMO Airflow CONVECTOR

Airflow Convector give flowing circulating air warmth projected forward into a room, which avoids discoloration of walls. By airflow action the air is changed rapidly and frequently, providing a continuous air freshening action, which prevents stuffiness and lassitude and provides a comfortable warm surrounding atmosphere with economy and efficiency. Ideal for offices, public buildings, homes, etc.  $\frac{1}{2}$  to  $1\frac{1}{2}$  K.W.



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EVERY DAY!**

**A COMPLETE DISPLAY OF  
DOMESTIC APPLIANCES.**

IN OUR NEW EXTENSIVE SHOWROOMS.

WE ASSURE YOU OF PERSONAL SERVICE TO YOUR INTRODUCTIONS  
AND YOUR INTERESTS WILL BE SAFEGUARDED ALWAYS.

# Sloan Electrical Co., Ltd.

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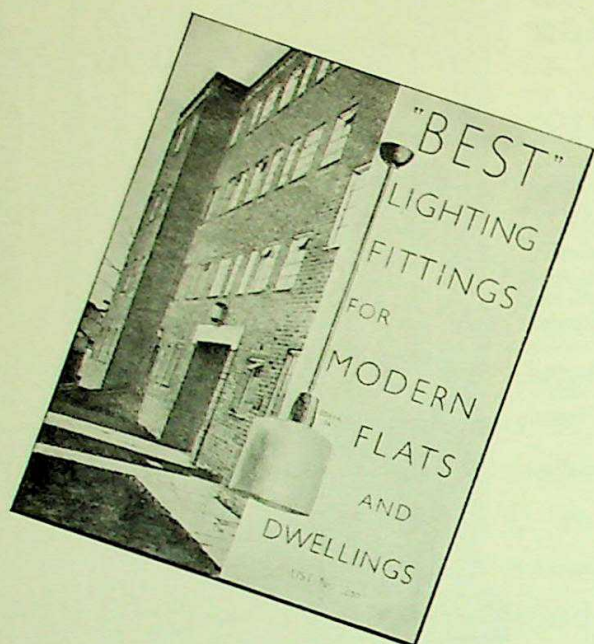
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|-------------|---|-------------------------------------------------------------------------|
| ABERDEEN    | - | Lawson, Turnbull & Co., Mealmarket Street                               |
| BELFAST     | - | Stevenson & Turner Ltd., West Street, Smithfield                        |
| BRISTOL     | - | Gardiner, Sons & Co. Ltd., Beacon House, Queen's Rd.                    |
| BRIGHTON    | - | Galliers (Wholesale) Ltd., 5 Cavendish Street                           |
| DUNDEE      | - | Wood & Cairns, Ltd., 7 and 9 King Street                                |
| EDINBURGH   | - | J. Aikman & Co., 1a Hill Street                                         |
| EXETER      | - | Rowe Bros. & Co., Queen Street                                          |
| GLASGOW     | - | Milne & Mitchell, 75 Bath Street                                        |
| LIVERPOOL   | - | Downes & Davies, 1/9 Stanley Street                                     |
| LEEDS       | - | Sun Electrical Co. Ltd., 49/50 Park Place                               |
| LONDON      | - | Sun Electrical Co. Ltd., 118/120 Charing Cross Rd.                      |
| LONDON      | - | L.E.S. Distributors Ltd., 15 Alfred Place<br>Tottenham Court Rd., W.C.1 |
| LONDON      | - | Dulcetto-Polyphon Ltd., 2/3 Newman Street, W.1                          |
| MANCHESTER  | - | Hirst, Ibbetson & Taylor Ltd., 9 Blackfriars Street                     |
| NEWCASTLE   | - | Sun Electrical Co. Ltd., Sunco House, Carlisle Sq.                      |
| PORTSMOUTH  | - | Southeys Ltd., 22 Russell Street                                        |
| SOUTHAMPTON | - | Dulcetto-Polyphon Ltd., 45 London Road                                  |
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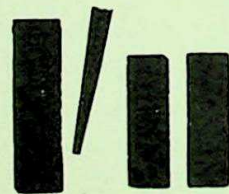
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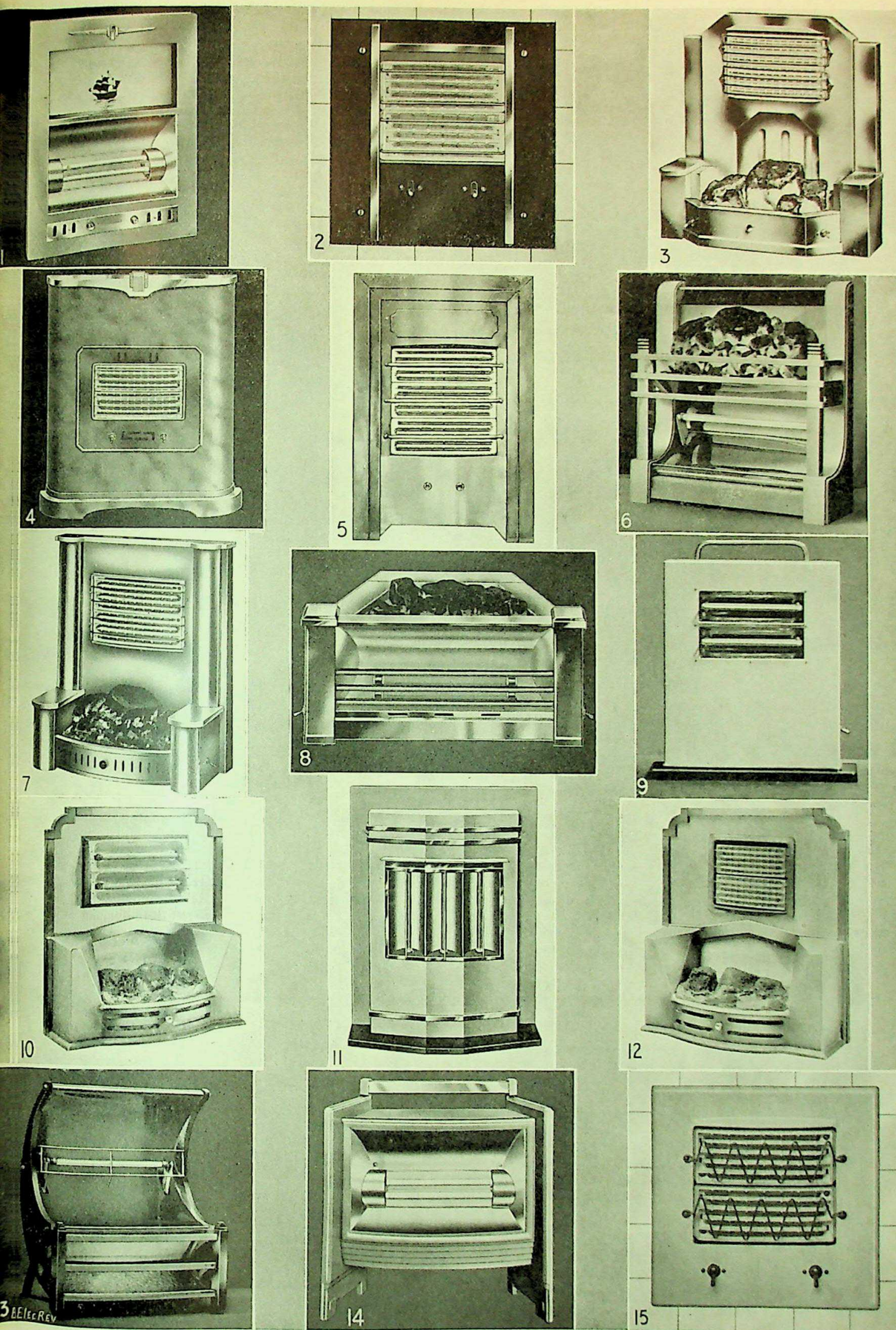
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### Modernity is the Keynote of these Representative Electric Fires

1. Hotpoint "Skye" with illuminated picture. 2. Electroway inset fire. 3. English Electric "Coal Effect" equipment. 4. Simplex "Dorset" with all-metal surround. 5. Mantel fire by Eastwoods. 6. Ferranti principle maintained with imitation fuel. 7. A synthetic material coal effect. (French). 8. New Ascot 2-kW fire only 10 in. high ("Creda"). 9. Coarse-sprayed "Raystone" (B.N.E.). 10 and 12. Two forms of the Falk, Stadelmann "Sungbeam." 11. "Magnet" screen fire. 13. "Glowera" with bottom glow device. 14. "Framed" parabolic reflector (Hotpoint "Puma"). 15. Falkirk wall fire



shaped to get similar results. "Exceptional heat distributing powers" are claimed for the "double radius" firebar as used in the new "Trent" and "Knowle" fires introduced by Premier Electric Heaters, Ltd.

In principle, ideas to effect directional heating are similar to those adopted for wide distribution, except that the angle setting is usually variable for directional purposes and is almost solely confined to reflector equipment. The Carron "Beacon" and the cradled reflector fires by Phillips have their reflectors pivoted in the supporting frame for focusing, while the beam direction of the recently introduced 600-W Premier "Paraglow" is varied by adjustment of the rear legs of the fires. These three makes of fires are all of the endless-reflector type which has developed rapidly in a matter of practically months only. The new English Electric parabolic reflector fire is similar, but without swivelling, and so is the "Wizard III" by Falk, Stadelmann, which is also pivoted and built in a tubular stand.

The "Queen" reflector fire produced by Messrs. H. G. Moseley & Co., Ltd., is notable for its unusually large horizontal reflector suspended in a tubular frame. The tall easel-like construction gives the tubular fire of Inventum, Ltd., a distinctive note, but probably the outstanding constructional point about this is the switch and connecting box at the base in which the ends of the tube terminate. An outstanding exception to the endless parabolic reflector construction is the Hotpoint "Puma," which has reflecting endplates, while the whole is set in a substantial cast-iron frame.

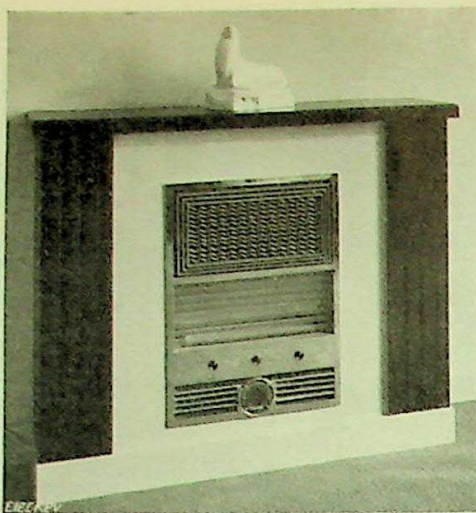
The new G.E.C. reflector fire is also of tubular frame construction, and this company states that its last season's reflector fires secured great popularity. It seems that the affection for the rod-type element among manufacturers has as much to do with this development as has the reflector fire's appeal to the consumer. To prevent a fractured rod touching the reflector or guard, insulated metal loops encircle the elements on "Magnet" reflector fires.

The Hotpoint "Cobra"—a bowl fire on a tubular pedestal-type stand—is considered to be the logical development of the standard bowl fire. The "Rey-dome" ceiling bowl fire produced by Messrs. A. Reyrolle & Co., Ltd., is one of the simplest methods of overcoming the peculiar bathroom heating problem. It can be focused easily for any angle of projection and switching is effected by a pull cord. An Inventum fire for bathroom use is similarly operated. Because of its

"Genii" hot-water radiator with insulated convective shield (Geo. Nobbs)

particularly long single reflector (3 ft. overall) and its 1,700-W loading we regard it as an important contribution to bathroom heating.

The six hundred watts or so loading is now by no means confined to the bowl fire. For instance, the Simplex horizontal-trough "Plover" is loaded at only 600 W, and this and 750 W apply to two new fires introduced by the Grafton Heater Co. The smaller unit has a bar element in a well at the foot of a sweeping back reflector. We have seen a few bakelite-

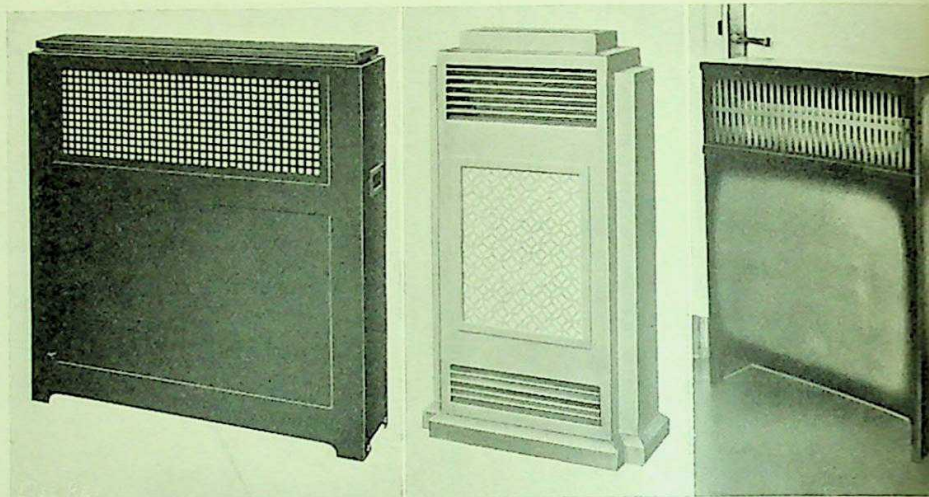


A wood cab net "Thermovent" convector

frame fires recently; the latest development appears to be small horizontal reflector fire listed by the Cooper Stewarts Engineering Co., Ltd., which has coloured bakelite sides. The Jackson Electric Stove Co., Ltd., reports that it has introduced nothing new owing to the popularity of its last year's models, and it directs our attention particularly to the vertical element reflector fires with separately reflectored elements and without the usual outer framework—a distinctive feature of this make for some years.

We feel that there might be some confusion regarding the new "Magnet" screen fires which stand solid on the floor, are designed to conceal the majority of grate opening and are loaded at 2 kW, for the term "screen fire" usually implies the ornamental fire screen fitted with a small fire element unit, such as the new Grafton screen fire with back-supporting bracket and 600-W 10-in. bowl fire. The term might also be applied to many surround, panel and mantel fires and such fires as the Simplex "Dorset" which is designed for permanent floor mounting but has something of the screen effect about it.

Mantel, panel, surround, inset—each of these terms connotes a definite type of fire, but how often does one see all the terms used in connection with one class of equipment only? The width of the frame and the fire screen to determine the classification in a good many cases. For example, the "Xcel H7363" has a wide frame which can be regarded as its own surround or otherwise, but the pressed steel frame of the "H7369" model of the same make is essentially the fire surround.

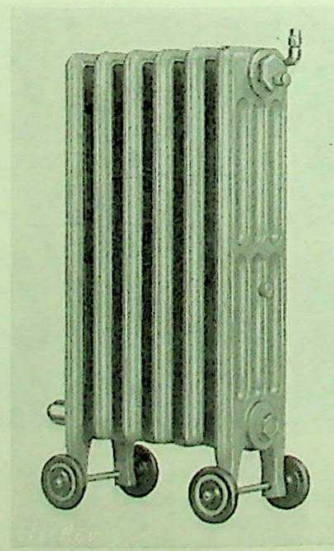


Heatrae air warmer, Artic "Airflow" convector, and "Thermidair" convector

The sheet-metal inset fire produced by Electroway Heaters, Ltd., is definitely designed for use without a surround, other than the wide frame of the fire.

That something we call "character" is responsible for the ready acceptance of the "Colonel" inset fire made by Messrs. H. G. Moseley & Co., Ltd., as a surround unit (it should be good as shown with the glass surround) or as a straightforward panel equipment. The "Major" radiator is the same type with the necessary appurtenances to render it portable. The English Electric combination mantel surround and fire has a useful and attractive shelf at the top of the surround. Some outstanding examples of mantel fires, with and without shelves and distinctive tall and slender looking backs, are produced by the Falkirk Iron Co., Ltd. A new wall fire made by the same company is suitable for mounting in tile surrounds and has a box frame for grouting in, in which the fire portion is readily screwed.

It is becoming a habit to refer to the popularity of the inset fire in such periodic reviews of heating equipment as this. The development is truly remarkable and certainly the outstanding one commercially. The separate Carron inset-fire list is one indication of this. The company has revived the question of convection from a radiator-type fire by virtue of heat circulated round the back of the elements. Similar portable mantel fires introduced by Messrs. Eastwoods, Ltd., are fitted with a canopy which induces a hot-air draught at the back of the fire bars, the back element casing is lined with asbestos. This arrangement



Six-section (750-W) Warmo hot-water radiator





#### Further Examples of Good Modern Fires

1. "Villaberry" with chimney effect. 2. Sullivan coal fire. 3. Artie "coal flame" radiator-convactor. 4. "Woodstock" (H.B.N.E.) chimney effect fire. 5. Grafton reflector fire (750 W). 6. Carron "Beacon" with adjustable reflector. 7. "Dowsing" "Utility Hot Bar." 8. "Crescent" (Phillips) sheet-metal fire. 9. Belling "Adam." 10. An improved "Sunray Tricity" (H. G. Hawkins), one of the new smaller models with the louvres closer together. 11. "Magnet" e.i. portable fire. 12. Aurora projector fire. 13. Reflector fire (Manor Electric Oven & Fire Co.) in which element is mirrored in the reflector. 14. Premier "Bredon" reflector fire in cast frame. 15. The Berkeley & Young "Paragon"



ment is claimed to give the maximum of radiation and convection.

Whatever the extent, the heat dissipated into the cooling air is certainly circulated into the room. For the first time we have seen a figure given for the wall temperature at the back of inset fires—well below 100 deg. C., says the G.E.C.

The idea introduced a few years ago of fitting baffles over the element units of inset fires to deflect the heat outwards and prevent or reduce discoloration of the equipment and walls has now been extended to portable fires. For example, the "Cromwell" and "Dorchester" reflector fires marketed by Messrs. Bulpitt & Sons, Ltd., have baffles over each of two staggered horizontal reflectors. The small unit designed for permanent installation in a coal fire mantelpiece, such as the Electroway unit, must also be regarded as inset equipment. We prefer the all-electric job, of course, but, as with all ordinary electric fires installed, we hope that they are the "means to an end."

The combined radiation and convection idea, in principle or as a system, is just as strongly supported in many quarters, but there is little effort made to push the sale of equipment or, indeed, electricity along those lines. Nor, we should say, is there likely to be with the present limited conceptions of load building. The combined radiators and convectors bearing the names "Artic Glow," "Flame," and "Coal Flame" produced by the Artic Fuse & Manufacturing Co., Ltd., with their three, four and five "effects in one" appear to be gaining in popularity. We are told that they circulate warm air at 200 ft. per min., and we suggest that to know the quantity of air circulated and its temperature would help many to understand the meaning of this. We believe that in the confusion of ideas and terms relating to air convection and circulation there is a serious risk of a setback to convection heating, with consequent damage to electric heating generally.

Berry's assure us that with the "Haloberry" effective room heating results from the fan drawing air from the outside atmosphere and passing it into the room after it has been warmed during its passage round the back of the radiator elements. If this is so then a really big advance has been made in electric space heating.

There is a marked tendency to increase the loadings of convectors nowadays, and this gives rise to further confusion regarding the terms high- and low-temperature heating.

Heatrae, Ltd., have three convectors with one-, two- and three-kW loadings, respectively. The largest model measures overall 32 in. high, 41 in. wide, and 7 in. projection, and the makers tell us that the discharge-air temperature can be taken as about 100 deg. F.

Thermovent, Ltd., say that their convectors operate with a discharge-air temperature of 200 deg. F. The loadings of three cabinet "Thermovents" are one, two and three kW respectively, and the overall dimensions of the largest model are 25 in. high, 42 in.

wide and 5½ in. projection. An interesting test report signed by Dr. George Green, of Glasgow University, shows that for two rooms similar in all respects one heated by "Thermovents" and one by radiators of practically the same total loading, the electricity consumption was roughly twice as much

for radiation as for convection for a two-hour run with automatic temperature control in both cases. The Arora air heater is loaded at either 1½ or ¾ kW, and the dimensions are 30 in. 22½ in. and 5½ in. The Belling convector is one example of the tendency to illuminate convectors. A concealed lamp results in a warm glow at the base and also indicates when the convector is switched on. Incorporating a thermostatic switch in the convector equipment is an idea advanced by Uniflow Heating, Ltd. "Thermidair" convectors produced by M. Land Metal Diecastings, Ltd., are available in lengths (end to side) of from 20 in. (1 kW) to 38 in. (3 kW). The elements are loaded at 350 W per foot and the outlet temperature does not exceed 120 deg. F.

In providing cabinet enclosures for their "Electrovex" and "Electro-vapour" hot-water type radiators Messrs. Benham & Sons, Ltd., seem to have further answered the often repeated question: Are these appliances radiators or convectors? The appearance is certainly improved. The convector shield fitted to "Genii" low-temperature hot-water radiators by Messrs. George Nobbs, Ltd., is claimed to prevent radiation loss to the wall, or blackening of decorations above the radiator, and by deflecting the heat outwards to give a more uniform heat distribution. The most interesting point about these, we think, is that the shield itself is heat insulated. The Benham enclosure also reduces or prevents wall blackening, of course. Hospital-type hot-water radiators produced by Eastwoods are of "special solid heavy" construction and are said to possess high thermal storage capacity.

A departure from the usual "permanent installation" idea associated with hot-water radiators is the portability of the units produced by the Warmo Heating Co. They are provided with castors. The largest listed "Warmo" equipment has fifteen sections and 38 sq. ft. of heating surface, and it is loaded at 2.5 kW. It is interesting to compare these loadings and that of 60 W per sq. ft. given by Messrs. George Green & Co. with the usual 60 W per foot run of standard 2-in. heating tubes. It is not often, however, that surface temperature figures are given, and we suggest that they are useful to contractors and others. For their 60-W, 66-W and 90-W tubes (2 in., 1½ in. and 1¼ in.) Arora give 210, 250 and 350 deg. F., respectively.

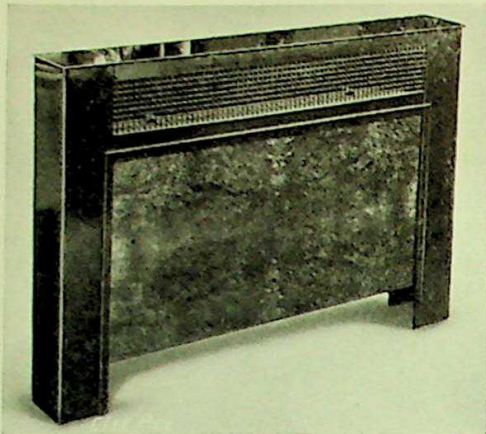
An example of the very much increased loading of tubes permitted by increasing the emission area by gills is to be found in the Heatrae gilled air warmers. A 2½-ft. long (single) is loaded at 500 W.

Portable tube radiators such as those sold by Siemens are excellent for many purposes and places—window and door recesses in particular. The Waring Tube Heating Co., Ltd., advocates tubes recessed below the floor level. This is extended in two ways by the Space Heating Co., Ltd., who say that its "Walline" recessed skirting panel is virtually a miniature low-temperature panel which may be installed round the full perimeter of the room. The "Walline" floor panel is installed flush with the floor in such places as in front of French windows. The surface must be exposed and the loading is 30/40 W per foot per 5-in. width.

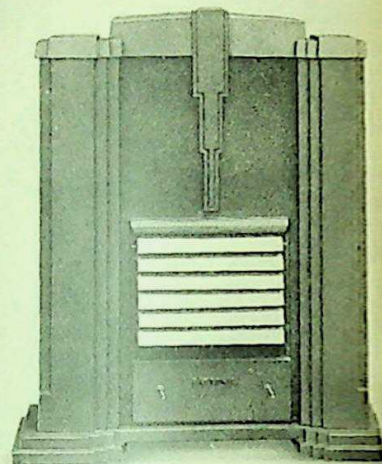
This company's low-temperature and high-temperature panels represent the clearest attempt that we have seen to discriminate between the two systems of heating. The low-temperature panels are supplied in sizes up to 8 ft. 6 in. 2 ft. 6 in. and loaded to 1.5 kW, while the high-temperature type are available in sizes up to 25 ft. by 15 ft. and loaded to 1.25 kW. A rather similar idea is expressed in Benham's open and flood "Panelrays." Open heaters loaded at 1,250 W measure 1 ft. 4 in. by 5 ft. 4 in. and 2 ft. by 4 ft. and flood heater of the same loading is 1 ft. 4 in. and 2 ft. 8 in. in size.

There is something of the thermal storage heater about a radiator produced by Raytonic Heating & Engineering Co., Ltd. It has a concealed 625-W vertical element at each end and a 250-W carbon lamp provides a pleasant visual effect through translucent louvres.

The domestic scene at the head of this article was "staged" for our photographer by the Kensington & Knightsbridge Electric Lighting Co., Ltd.



Benham panel air heater



Raytonic radiator



"Walline" recessed floor panel heater (Space Heating Co.)



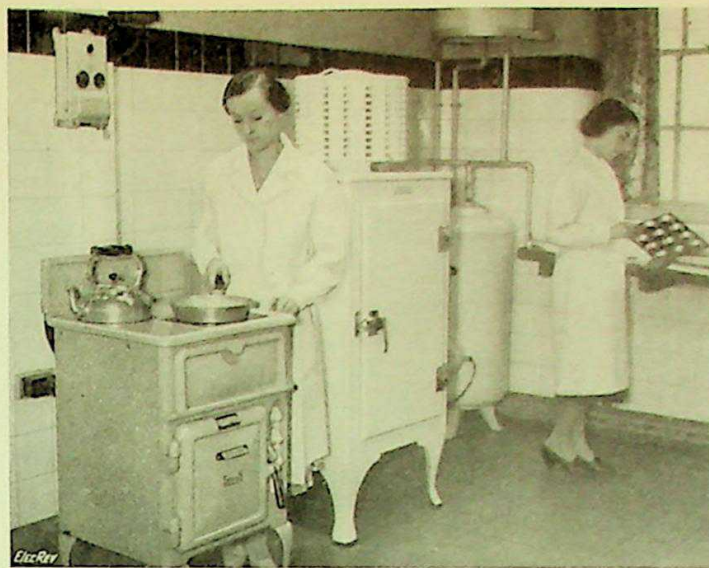
# New Ideas in Cooking Equipment

Since our last Domestic Number appeared we have witnessed a period of exceptional activity in the popularising of electric cooking. At Poplar early this year over 10,000 attended series of demonstrations, as a result of which hundreds of additional cookers were installed. Similar reports have come from many other parts of the country. In the following article we describe some of the ways in which the manufacturer is playing his part in furthering this development.

**A**UTOMATIC oven temperature control is probably engaging the cooker manufacturer's attention as much as anything to-day, but so far as marketed equipment is concerned such control at present represents only a minor development. We are not sure yet whether or not the time has come for sounding the industry generally for its feeling on this point, but we are confident that, with automatic control introduced, there will be some fairly widespread changes in cooker construction sooner or later arising out of the possibility of playing the thermostat to cooker work.

During the deliberations in the past few years on radiant and convected heat in connection with space-heating we have thought that one day something similar might take place in respect of cooking developments. Yet recently we saw some results of experiments by Messrs. Belling & Co., Ltd., which showed that for precisely the same air temperature and load conditions, but with different element control arrangements, scorching took place in one case only due to excessive radiant heating. In a cooking equipment article it is too long to dwell on the different methods of effecting automatic control, but as Belling are trying out both single- and two-stage control it is well worth recording that they seem to favour the single-stage scheme.

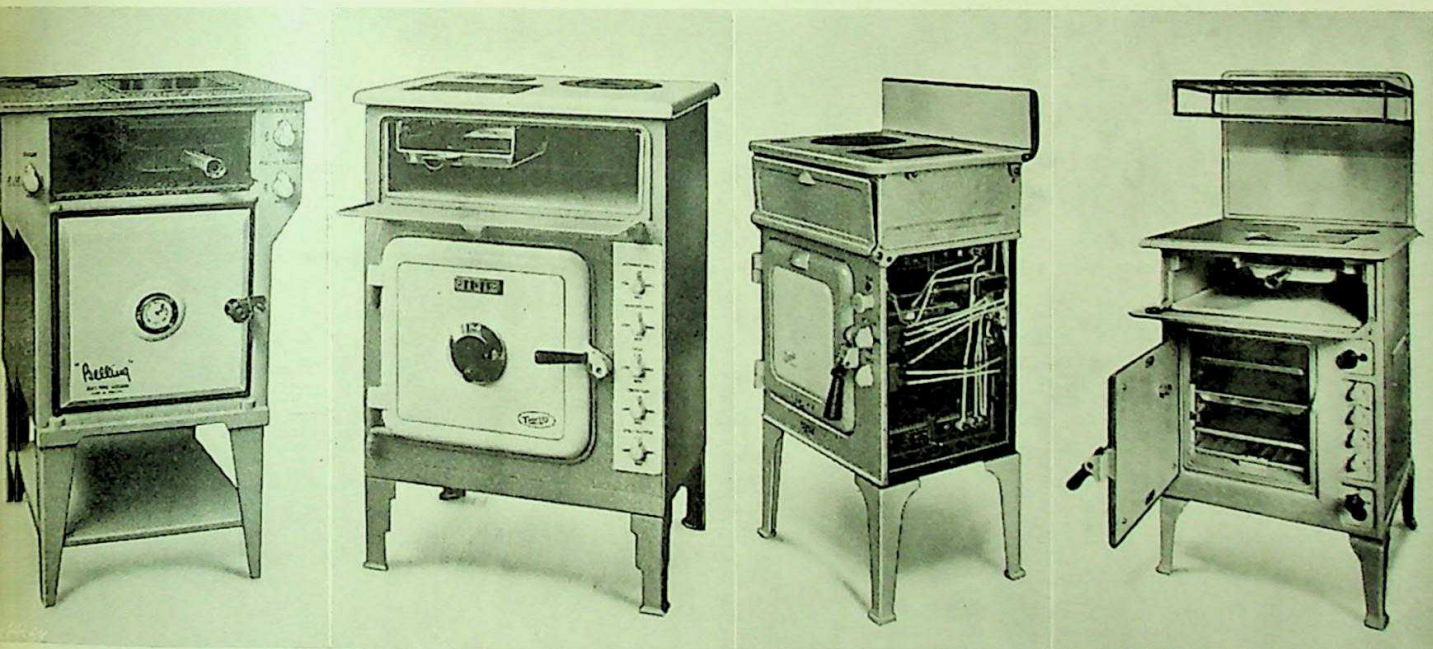
While practically all manufacturers have made it clear that they can answer demands for automatic control, only a few are definitely advocating it. Messrs. Albert Phillips, Ltd., newcomers in the cooking field, have started right away with automatic control as standard. Messrs. Moffats, Ltd., are keen on the idea, and say that the extra cost is partly offset by the simplification of the usual oven switch. Tricity Cookers, Ltd., have pointed out that heat sectionalising for different kinds of cooking is permitted by the combination of three-heat switching and automatic control. Messrs. Siemens Electric



three-heat switching, and the many more loading degrees obtainable thereby. There is also the infinite heat regulation offered by Kubex, Ltd., in connection with their small oven for table-top work which they claim is the only oven on the market that provides such regulation, excluding automatically controlled equipment. It is to obtain greater oven-heating flexibility that Messrs. Falk, Stadelmann & Co., Ltd., have adopted low-heat switching at one-sixth of full load, and the aim at flexibility is behind the recent thermal-storage cooker developments of the General Electric Co., Ltd. In the semi-storage cooker, with its 160-lb. block entirely heat-insulated from the oven, it is claimed that for a total load of 2 kW the facilities of an ordinary cooker loaded at 8 or 9 kW are provided. In the "all-storage" cooker an additional 60-lb. block serves for grilling and also assists the oven heating. This block is partially heat-insulated from the top block to prevent the temperature of the lower one, from which the upper obtains its heat, being appreciably affected by heavy withdrawals of heat from the top block.

## Better Hot-plate Control

One hears more about flexibility in connection with the boiling-plate, and we are with the G.E.C. in hoping that the adoption of four-heat hot-plate control will do much to dispose



Left to right: A Belling light-construction cooker; a Tricity model with automatic control and three-heat regulation; a complex design with "exterior" elements and automatic control; and a Siemens "Automatic" cooker with main switch

Supplies, Ltd., appear to be rather more impressed by the finer temperature regulation afforded by automatic control.

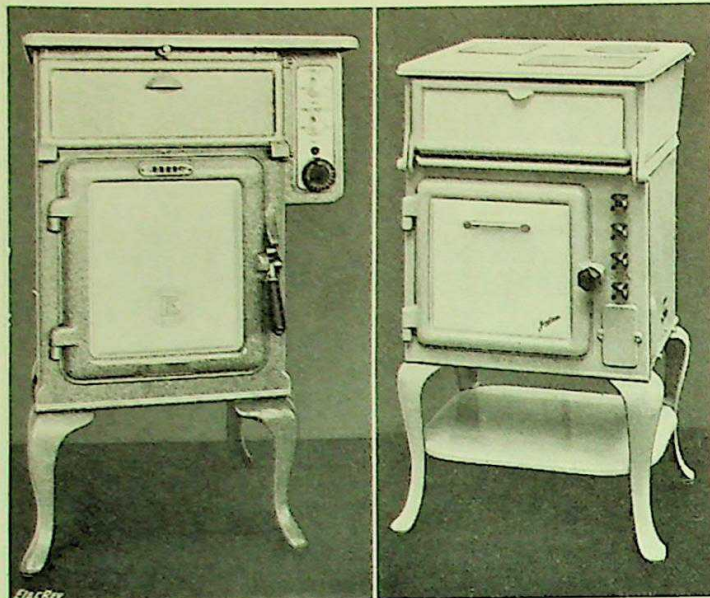
Because "steam ejection" was initiated definitely in connection with automatic control (by Igranic Electric Co., Ltd.), reference here is fitting. We have seen the system fitted to a good many Belling cookers, but they are inclined to look on the scheme just as one form of ventilation, as also the Revo Electric Co., Ltd. We have seen a Phillips' "Luxe" cooker fitted for "steam ejection" as an experimental measure.

Heat regulation, however, is not necessarily linked with automatic control, and we are reminded of past, and in a measure, present, top and bottom heating with separate

of the unjust criticism levelled at the efficiency of electric cookers. The "Radiant" self-contained griller-boiler unit produced by British National Electrics, Ltd., has its sheathed element coils arranged in two separate sections with 4-heat control, the central section being controlled by a single-heat switch and the outer section by a two-heat switch. With such switching the control does not appear to be limited to four heats. The "Radiant" tubular sheathed coil element is made as a hot-plate for fitting to practically any make of cooker and, as with the "Torribar" hot-plate of similar construction fitted to the cookers supplied by the Hotpoint Electric Appliance Co., Ltd., the two sections have overall three-heat control, with the inner small section alone on medium heat to afford, in effect, a separate small hot-plate.



While from one angle this "plate within a plate" idea gives a measure of flexibility, so, from a different viewpoint, does the "interlacing" of elements on the Phillips boiler-griller to distribute heat over the whole area of the plate on all switchings. In each case, we suggest, the size of the utensil used governs the issue. We have learnt of the "Tricity" low-voltage griller-boiler with ten heating steps within loading

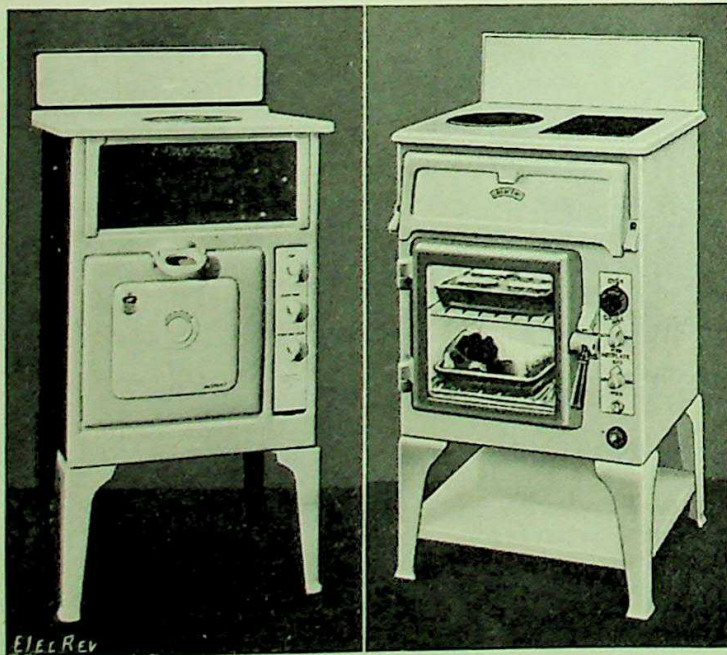


An English Electric cooker fitted for automatic control, and one of the Jackson range with back extended hob

limits of 800 W and 2,250 W, and also of an experimental move by Falk, Stadelmann to afford infinitely variable control on a l.v. boiling-plate by varying the air gap in the core of the transformer.

Associated with the last-mentioned development is the same company's quick-boiling scheme. A 2,500-W l.v. boiling-plate operates at 6 V, while by virtue of the two-plate construction of the element coils the upper layer permits only a 3-V drop between it and the utensil, assuming the utensil to be at earth potential. The transformer plates produced by Revo Electric Co., Ltd., and Simplex Electric, Ltd., are, of course, designed to the same end, while another quick-boiling idea advanced by the last-mentioned company is a boiler-griller constructed of element bars covered with stainless-steel inverted channels. The English Electric Co., Ltd., claims that the special tough cast-iron which it uses for solid plates permits a lighter casting and, therefore, quicker heating.

Generally speaking and, of course, individual makers' schemes and loadings apart, it is the lighter casing or enclosure on which the quick-heating claims for "visible-heat" elements are based. (We are not discussing thermal efficiency.) Hotpoint stress the combination of radiation and conduction as an advantage of the "Torribar." Judging from



The Moffat 42 M model, and a Phillips cooker with automatic control and a glass door

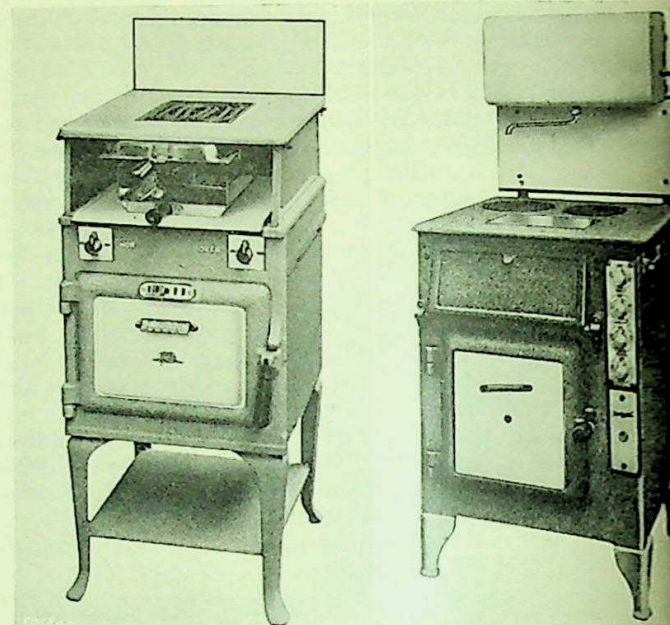
the number of "Chromalox" (Messrs. George Bray & Co., Ltd.) and other light-casing plates one sees on many makes of cookers nowadays (usually optional) the "visible heat" equipment certainly does appear to be gaining ground. We

do not believe that this is because of dissatisfaction with working of the solid plate, but rather on account of "psychological effect" appeal to the new consumer and for supply engineer, and also on account of easier groundwork the salesman and demonstrator in that residual-heat teaching is not so important. We have no fault to find with salesmanship, providing it is compatible with good, in better, service in every way. Moffat's "Cookquik" radiant plates have been increased in loading.

### Reducing Oven Width

Results of the past few months' intensified efforts to overall width reduction of small complete cookers (not top units and the like) are extraordinary. From a examples taken at random and on a straight external volume for oven volume basis, we should say that Revo takes place with a width of 11½ in., B.N.E. being a good example with a width of 16½ in. and a volume of 1,940 cu. in. Revo cooker has a 2,000-W boiler, a separate grill and 1,500-W oven load, while the B.N.E. equipment has a 1,800-W boiler-griller and a 1,500-W oven load. An English Electric cooker with an 8-in. boiling plate, 1,600-W oven load and 1,283 cu. oven volume, is 15-in. wide.

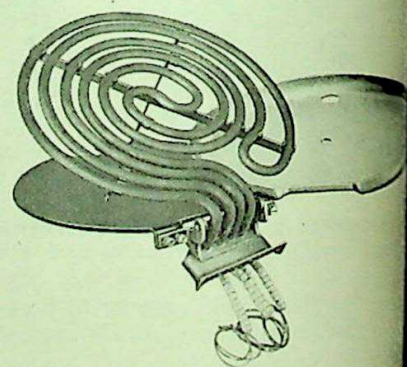
At 16½ in. wide and with an oven volume of 1,100 cu.



B.N.E. C5 equipment and the "Hotpoint" combined cooker and water heater

Carron Company offers a 2,000-W boiler-griller and 1,500-W oven load, while the smallest Falk, Stadelmann outfit is 15 in. wide, has 1,620 cu. in. of oven space served by 1,000-W separately, and is equipped with a 2,000-W boiler-griller. Comparison is a little difficult because it is not clear in all cases whether the cooking spaces given are net or gross; this point that wants clearing up.

Building-in the switches and fuses between the hob and hot-cupboard as adopted by the Falkirk Iron Co., Ltd., is a constructional means of reducing width, and another is extending the hob backwards as has been done in the 93J by the Jackson Electric Stove Co., Ltd., as a means of accommodating an extra boiling-plate. This cooker is similar to the 92J, except for the extra circular boiling-plate, which differs in design from the popular 91J, mainly on account of an increase of 2 in. in the height of the oven interior.



A Met-Vick boiling plate with element hinged to the under-carriage

Space saving is not always a question of width reduction, however, and often width is subordinated to actual floor space saving. The new Hotpoint table-type cookers, for instance, were originally developed for use with refrigerators in kitchenettes. With a refrigerator a complete outfit measures 19 in. wide, 19 in. deep and 38 in. high to the hob. The refrigerator capacity is 2.8 cu. ft.



"— but why  
should I run  
Magnet  
Cookers?"

"Because  
all elements are  
interchangeable —"

# G.E.C.

STANDARDIZED RANGE OF  
**MAGNET**  
ELECTRIC COOKERS



—and besides

# COOKERS

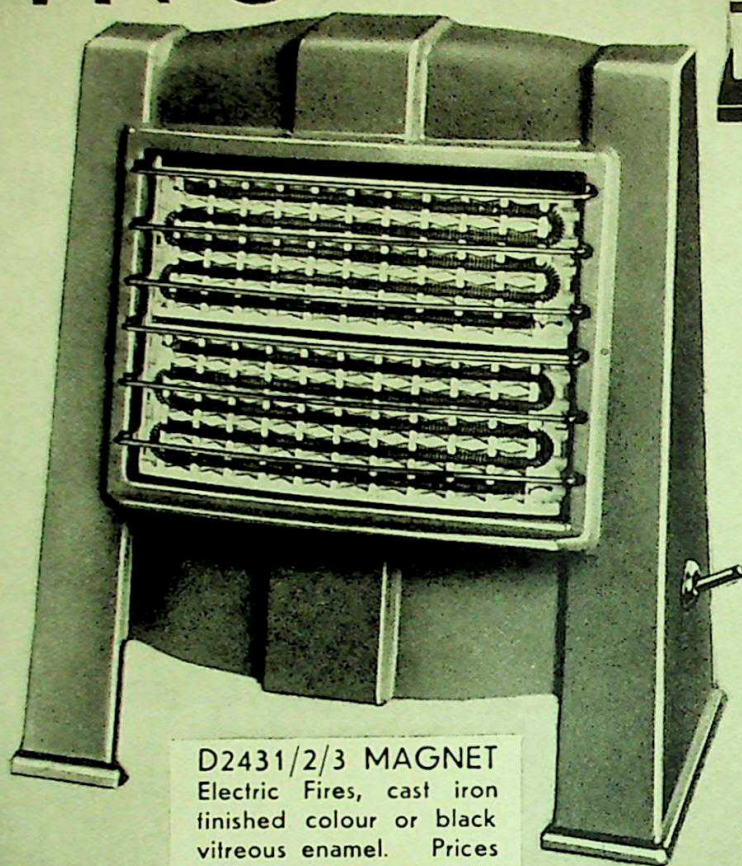
With all components  
**STANDARDIZED** and  
**INTERCHANGEABLE**

the G.E.C. is the pioneer of cooker standardisation. All electrical components including oven elements, hot-plate cradles and grill formers are standard throughout the range. MAGNET cookers offer exclusive refinements such as the new simmering device and are so reliable and cheap in maintenance that they are the best proposition for any hire scheme.

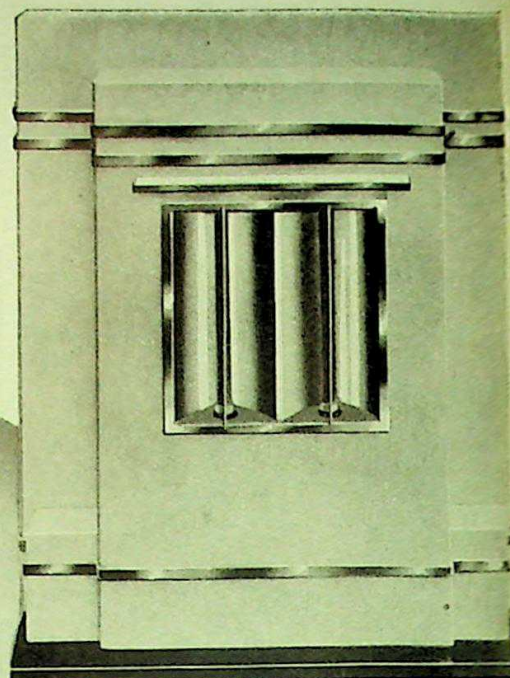


# G.E.C.

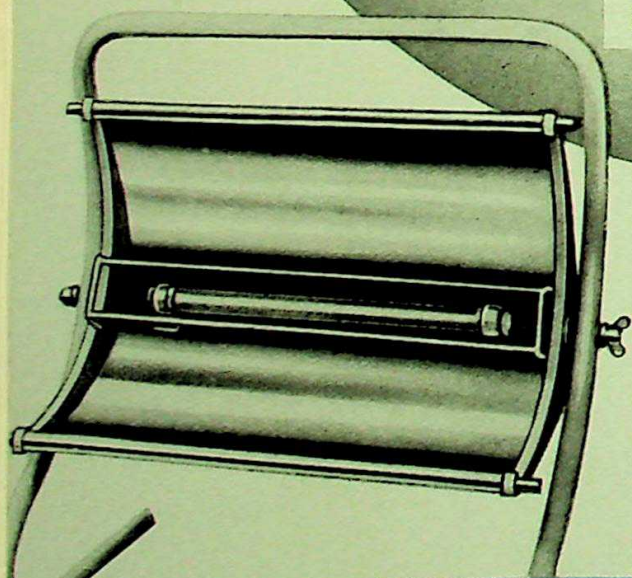
## ELECTRIC HEATING



**D2431/2/3 MAGNET**  
Electric Fires, cast iron  
finished colour or black  
vitreous enamel. Prices  
1,000 watts **18/6**  
2,000 watts **29/6**  
3,000 watts **45/-**



**D2554 MAGNET** Electric  
Fire, sheet metal screen type,  
2,000 watts. Price **£3.19.6**



**D2701 MAGNET**  
Electric Fire, in  
coloured enamel with  
chromium plated re-  
flector, 1,000 watts  
**30/-**  
Chromium plate  
throughout **32/6**

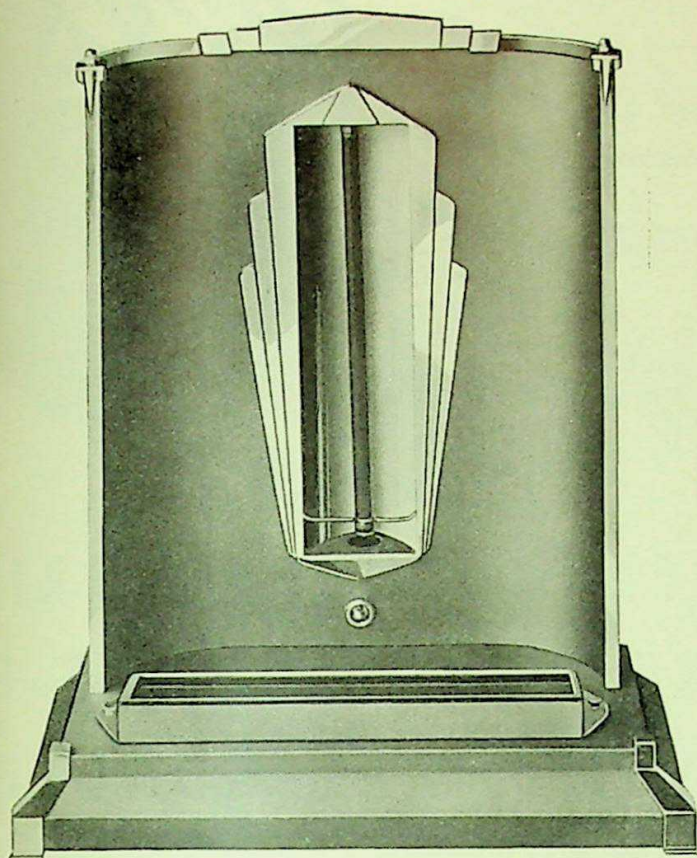
EXAMPLES  
FROM A  
WIDE RANGE  
OF NEW  
"MAGNET"

MADE  
ENGLA

# ELECTRIC FIRE

**THE GENERAL ELECTRIC CO. LTD.**  
Head Office, Magnet House, Kingsway, London, W.C.2





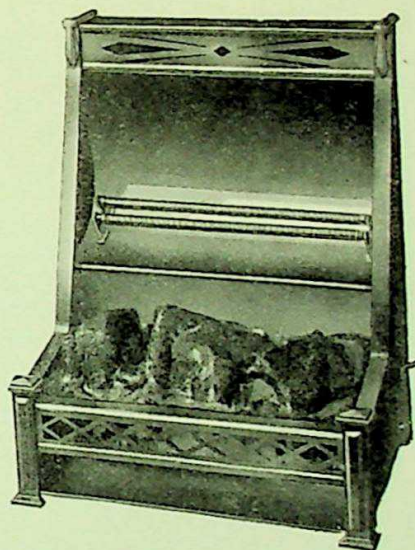
H 7373. 1 k.W. FLOODLIT FIRE.

Very Attractive New Design.

Finishes: Blue, Gold, Silver, with polished facings.  
Element set in Chromium-plated reflector.

Price £3 10s

# ATTRACTIVE *New* DESIGNS



H 7356. COSYGLO. 2 k.W.

A combination of coal effect with high efficiency  
reflector-type heating. Price - - £3 10s

## TWO EXAMPLES *of the* 1935 MODELS

*It pays to sell*

# XCEL

ALL BRITISH

## ELECTRIC APPLIANCES

ILLUSTRATED  
CATALOGUE  
No. 493  
SENT FREE  
ON REQUEST

### SIEMENS

Advt of SIEMENS ELECTRIC LAMPS AND SUPPLIES LIMITED, 38/39, Upper Thames Street, London, E.C.4.  
Branches at-Belfast, Birmingham, Bristol, Cardiff, Dublin, Glasgow, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Nottingham, Sheffield, Southampton





# *Experience Tells*

# SIEMENS

HAVE BEEN MANUFACTURING  
**WIRES AND CABLES** FOR  
OVER THREE QUARTERS  
OF A CENTURY

RELIABILITY IS THEREFORE  
ASSURED

*Specify and use*

# SIEMENS

BRITISH MADE

# V.I.R.

**WIRES AND CABLES**



Advt. of SIEMENS ELECTRIC LAMPS AND SUPPLIES LIMITED. 38/39, Upper Thames Street, London.  
Branches at-Belfast, Birmingham, Bristol, Cardiff, Dublin, Glasgow, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Nottingham, Sheffield, South

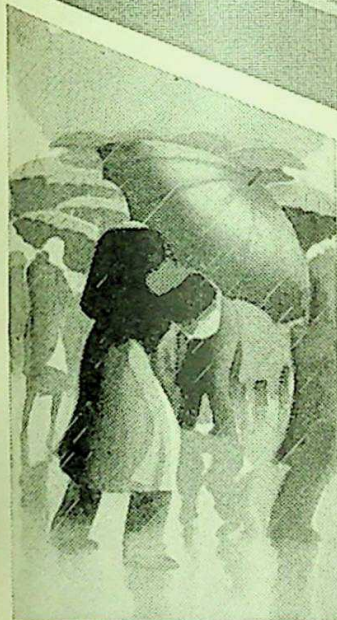
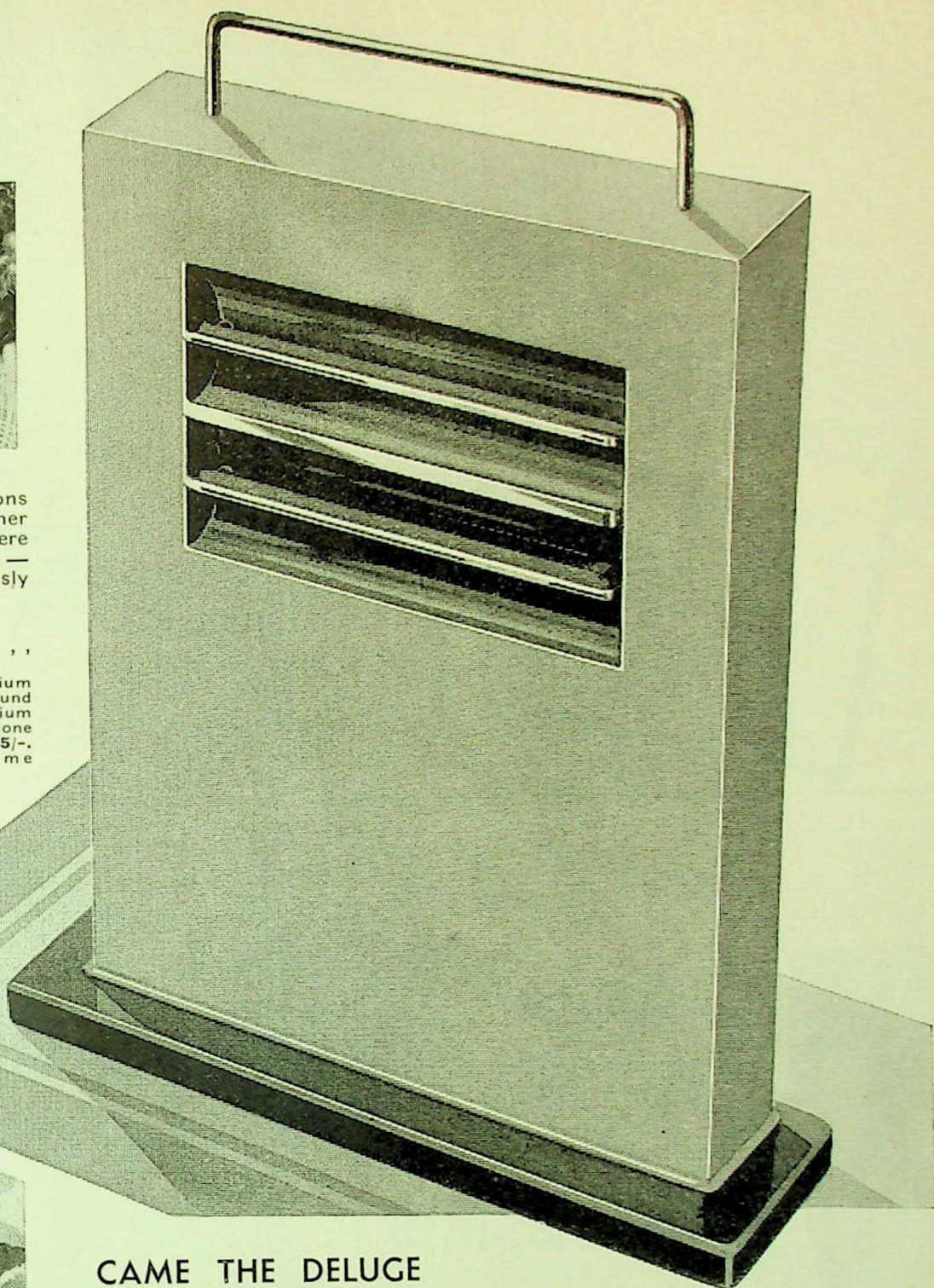




The success of dress fashions seems to depend whether they take on or not. There are fashions in fires too—here's one—unanimously carried.

#### “RAYSTONE”

With two parabolic chromium plated reflectors and close wound pencil type firebars. Chromium handle. Light Portland Stone finish with Ebony base 35/-. Shadowed Silver with Chrome relief and Ebony base 39/6.



#### CAME THE DELUGE

We're afraid we've rather "asked for it" but we never quite realised that we should take the Trade by storm so completely in so short a time. Of course we recognised that the design was new and startling—that two standard finishes did simplify stocking, and that the price seemed the last argument.

Now, our selling organisation is congratulating itself that it is sufficiently distant from the works not to hear the language occasioned by their having to work night and day.

From this you'll gather the importance of ordering NOW—we'll say no more!!

LONDON OFFICE AND  
SHOWROOMS: BERNERS  
ST., W.1.

'Phone: Museum 3821-3822

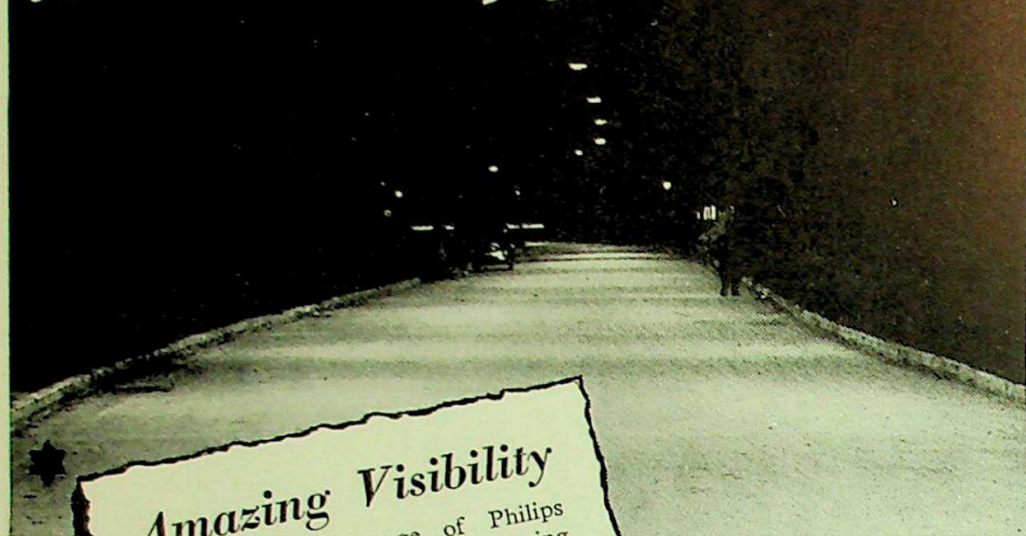
'Grams: "Connect," Rath,  
London."

Also Branches at 112, Hope  
Street, Glasgow; 10, Morrison  
Street, Edinburgh; 27, Bridge  
Street, Manchester; 36,  
Bedford Street, Belfast; and  
6, York Place, Leeds, 1.

# BRITISH NATIONAL



★  
*"When will they all be like this?"*



### Amazing Visibility

A particular advantage of Philips "Philora" lighting is the amazing visibility it gives, coupled with freedom from glare. Yet the consumption of Philips "Philora" sodium lamps is very little. Investigate the advantages of "Philora" lighting.

asks *The Daily Express* in its campaign against the Death Trap Roads of Great Britain.

The illustration shows an arterial road at Liverpool lit by Philips Philora street lighting system. The result is an evenly lit, shadowless surface, throwing up into strong contrasts any object upon it. Yet Philora lighting is 50% more economical than normal methods of street illumination.

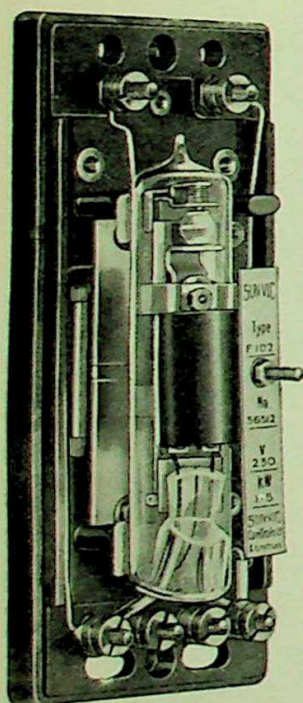
SEE THAT THE ROADS UNDER YOUR CARE are lit by

## PHILIPS PHILORA SODIUM LIGHTING

AND MERCURY LIGHTING

"THE SAFEST STREET LIGHTING IN THE WORLD"

PHILIPS LAMPS LTD., 145 CHARING CROSS ROAD, LONDON, W.C.2.



Sun-Vic Vacuum Switch with cover removed.  
 Rating: 2 k.w., 230 v., A.C. or D.C.

**VACUUM  
SWITCHES**  
 and  
**THERMOSTATS**  
 SOLVE THE PROBLEM  
 of  
 TEMPERATURE CONTROL  
 on  
 DIRECT CURRENT

Both thermostat and vacuum switch are operated by the expansion of metal in vacuum. Both, therefore, are independent of mounting position or vibration, and both can be operated on D.C. or A.C. without modification.

Write for descriptive leaflet.

**SUN-VIC CONTROLS LTD.**  
 NUMBER ONE, KINGSWAY, W.C.2.

Telephone: Temple Bar 8202.

## "dag" BRAND COLLOIDAL GRAPHITE

"dag" Brand colloidal graphite (in water) has many applications. It is used extensively for the drawing of wire filaments, for the manufacture of resistances, and for the coating of thermionic valves and the inside of the envelopes of cathode ray tubes.

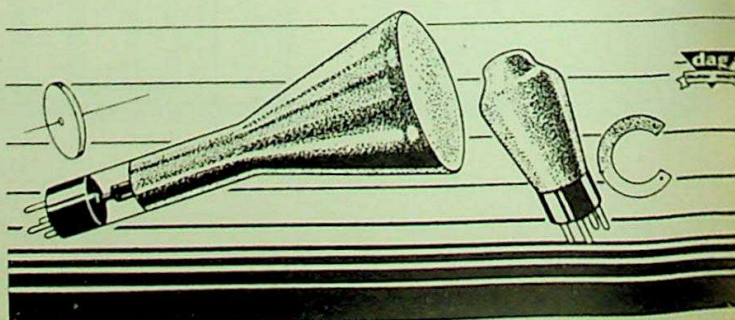
You may have a use for this unique product. Coatings formed by "Acheson's" colloidal graphite, "dag" Brand, adhere well to all types of glass and to metal, and are electrically conducting, chemically inert, insoluble and have a poor photo-electric value.

Write for further information to:—

**E. G. ACHESON LTD.,**  
 Manufacturers of "dag" Brand Colloidal Products,  
 THAMES HOUSE, MILLBANK, LONDON, S.W.1.

Telephone No.:  
 Victoria 5644  
 (4 lines)

Works:  
 Plymouth,  
 Devon



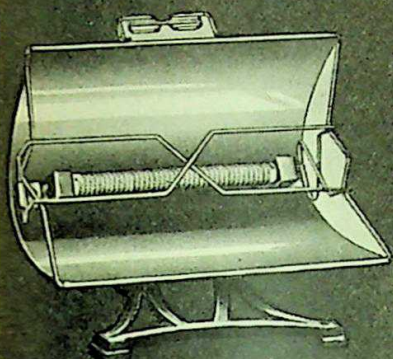


By appointment  
Ironfounders to



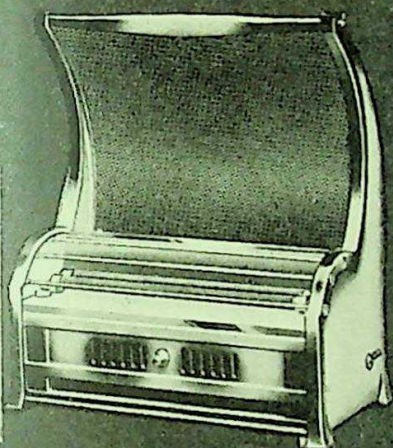
H.M. the King.

# The new season's 3 best sellers

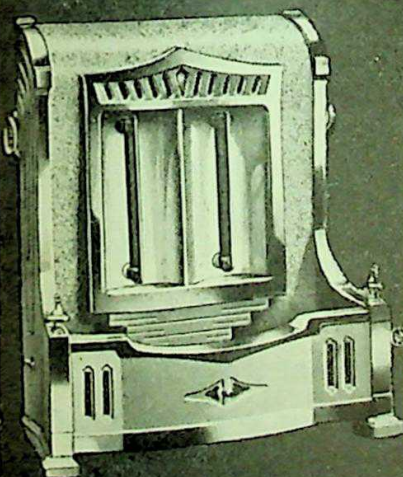


The "BEACON"  
An efficient Reflector Fire of neat appearance and exceptional value. The

parabolic reflector may be swivelled to project the heat in any direction. Finished in Chrom. Plate and Carrontine Enamel.



The "SUNGLO"  
Combines a bright and cheerful glow with the distribution of radiant warmth over an exceptionally wide angle. Finished in Art Silver and Chromium Plate.



The "LOUNGE"  
A model of elegant design, combining a charming floodlight effect with powerful radiant heat. Finished in Chromium Plate and Carrontine Enamel.

"BEACON," "SUNGLO" and "LOUNGE"

are the latest models from the popular Carron range of electric fires. All three are in heavy demand this season. They attract and satisfy because of their

- *Modern Design*
- *Powerful Heating Elements*
- *Absolute Reliability and Beautiful Finish*

These three Carron fires, already firmly established in popular favour, are increasing business wherever they are shown. Let them be seen in your showrooms, and enjoy the profits of quick sales.

# CARRON

## ELECTRIC FIRES

**CARRON COMPANY.** Works: CARRON, FALKIRK





## NO OTHER WIRELESS EARTH ROD OFFERS THESE FEATURES

- SOLID COPPER
- LARGE SURFACE AREA
- CORROSION PROOF
- HIGH CONDUCTIVITY
- LIFELONG SERVICE
- WILL NOT BUCKLE
- EASY TO FIX
- NO SOLDERING



PRICES  
ONLY

1/9-18"

2/0-24"

COMPLETE

*The*  
**ANACOS**  
REGD  
COPPER  
**EARTHING ROD**

(British Patent No. 423385)

Write for full Details and Discounts to

# FREDERICK SMITH AND COMPANY

(Incorporated in THE LONDON ELECTRIC WIRE COMPANY AND SMITHS, LIMITED)

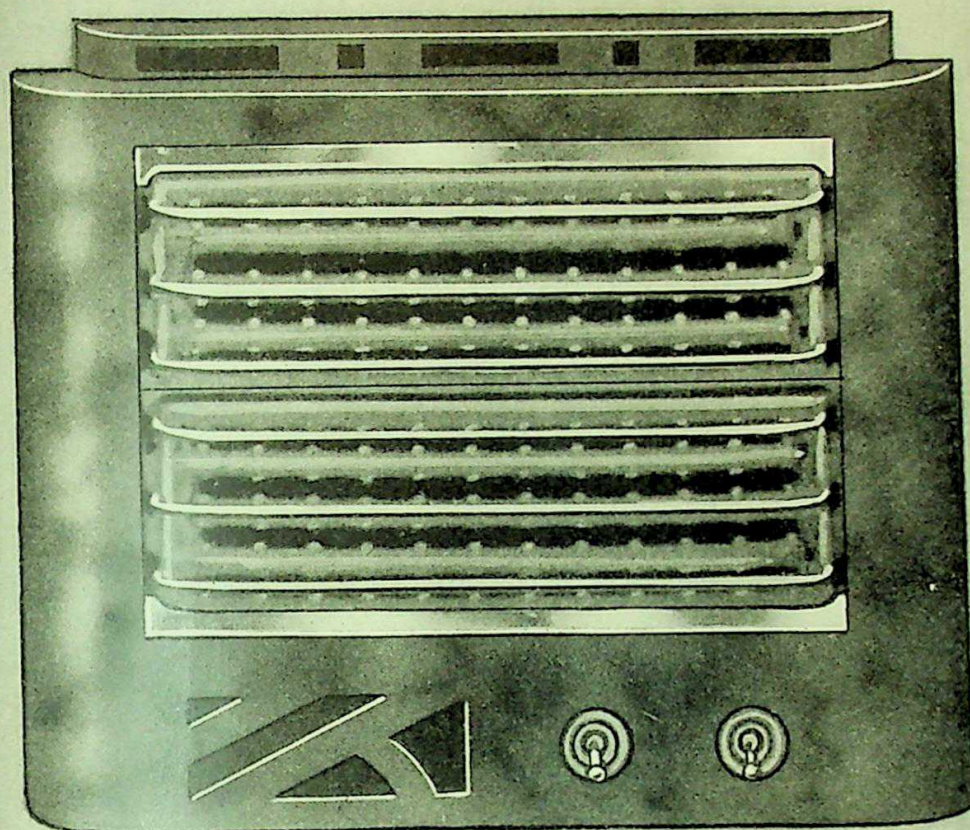
ANACONDA WORKS, SALFORD 3, LANCs.

Telephone: Blackfriars 8701 (8 lines).

Telegrams: "Anaconda, Manchester."



The FLAT BACK FIRE No.2 Price £1.15.0



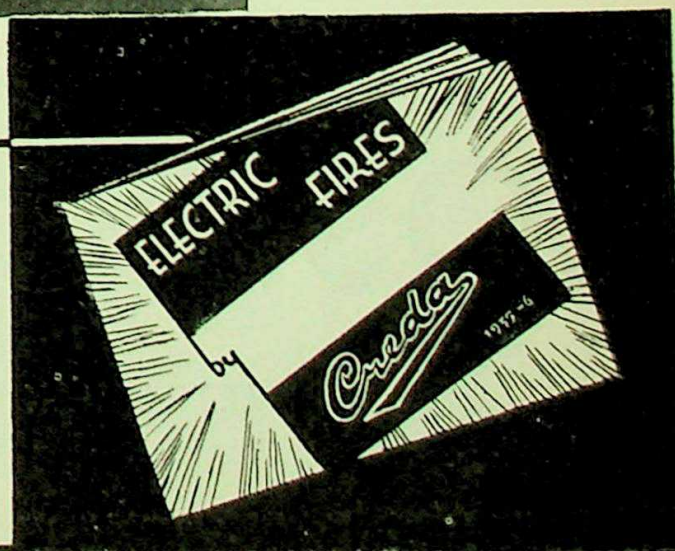
# ONE of the NEW *Creda* 1935 - 6 FIRES

This charming new wall-mounting fire is ideal for bedrooms and the modern square hall.

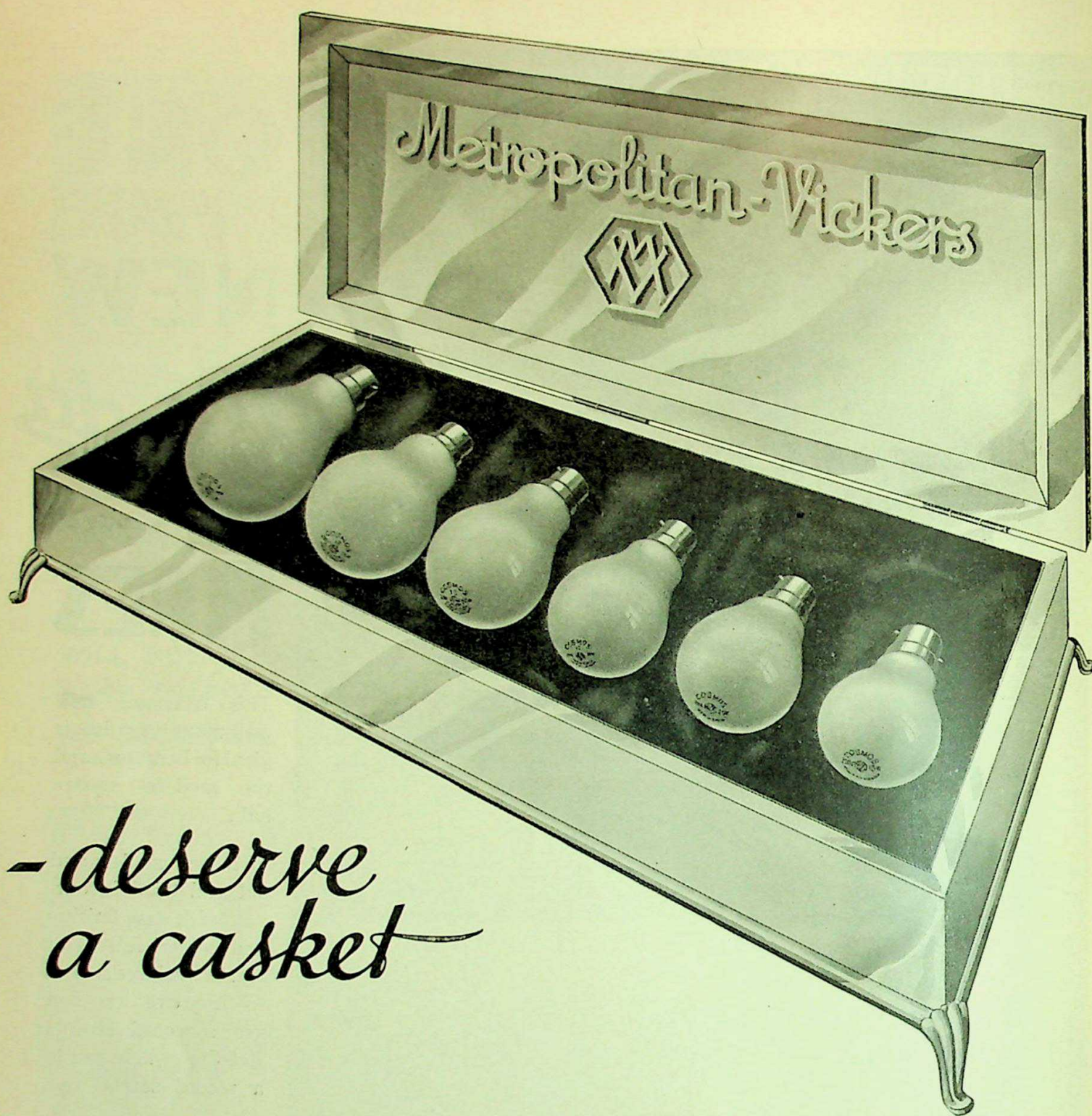
With new models and old and tried favourites, with new finishes and a superb full colour list, Creda have set out to improve on last year's record season. Let Creda help **you** to a record season too.

*This and over thirty other designs may be seen in the FULL COLOUR LIST available from Simplex Electric Company Limited. Head Office: Empire House, Gt. Charles Street, Birmingham, and Branches.*

All Creda Portable Domestic Appliances and Fires (when constructed of metal) are now fitted with Three Core Flexible as standard (complying with I.E.E. Regulations) without increase in price.







*- deserve  
a casket*

# COSMOS LAMPS

METROVICK'S 'LIGHT' PRODUCT

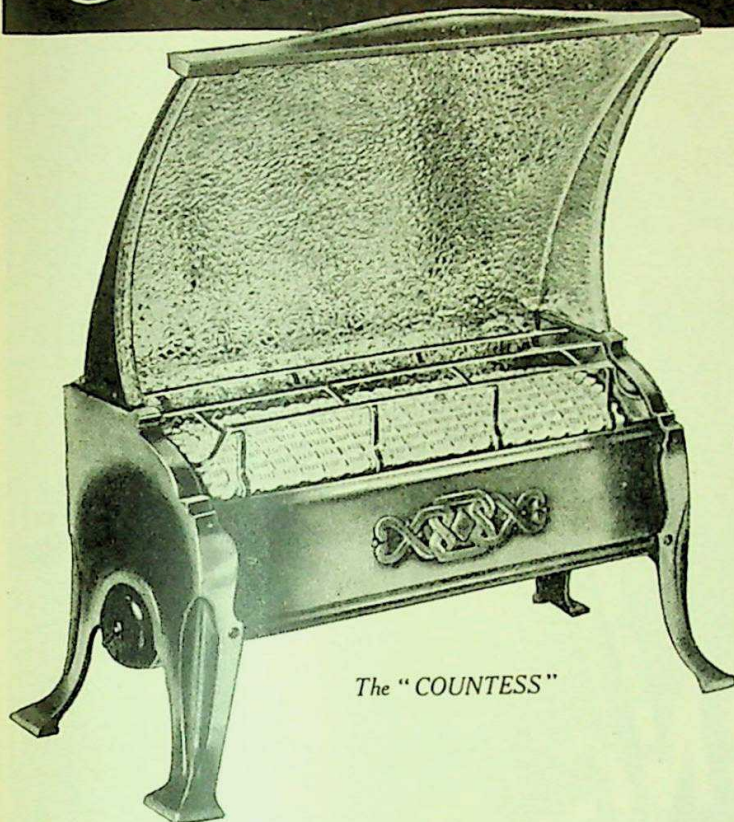
METROPOLITAN-VICKERS ELECTRICAL COMPANY LTD.

TRAFFORD PARK, MANCHESTER, 17 - - - NUMBER ONE, KINGSWAY, LONDON, W.C.2

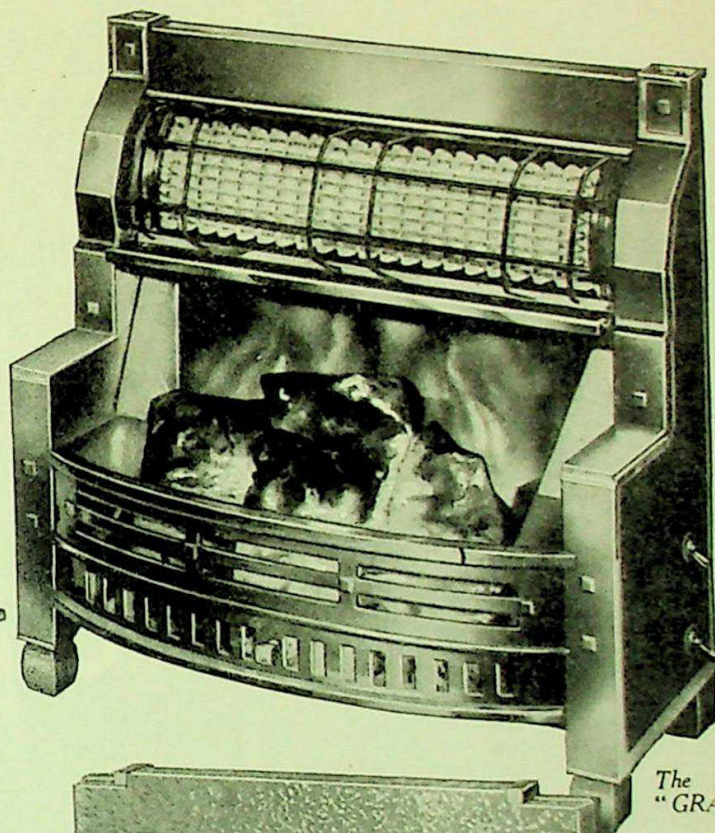


Remember Premier's New PARAHEAT Series, But Don't Forget The—

# Old Favourites



The "COUNTESS"



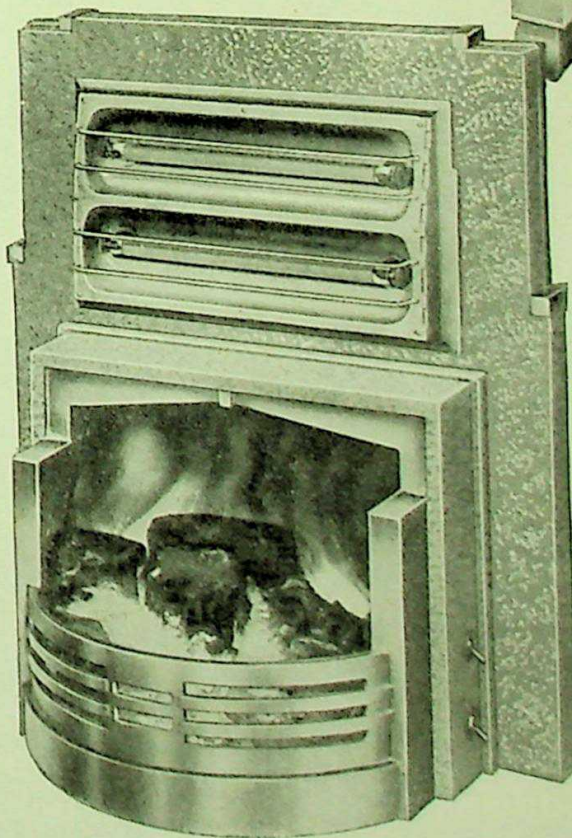
The "GRAFTON"

*"Make new friends but keep the old . . ."*

As good a business maxim as in any other sphere. And so, remembering the "PARAHEAT" series recently introduced, we turn again to those old "Premier" favourites—the "Countess," "Grafton" and "Gresham." They are proved stock lines and sure sellers. Put in the "PARAHEAT" range but be sure also to keep some of these old favourites to hand.

**PREMIER**  
ELECTRIC HEATERS LIMITED  
BIRMINGHAM 9.

TELEPHONE: BIRMINGHAM VICTORIA 2104 (4 lines)  
TELEGRAMS: FAHRENHEIT, BIRMINGHAM



The "GRESHAM"

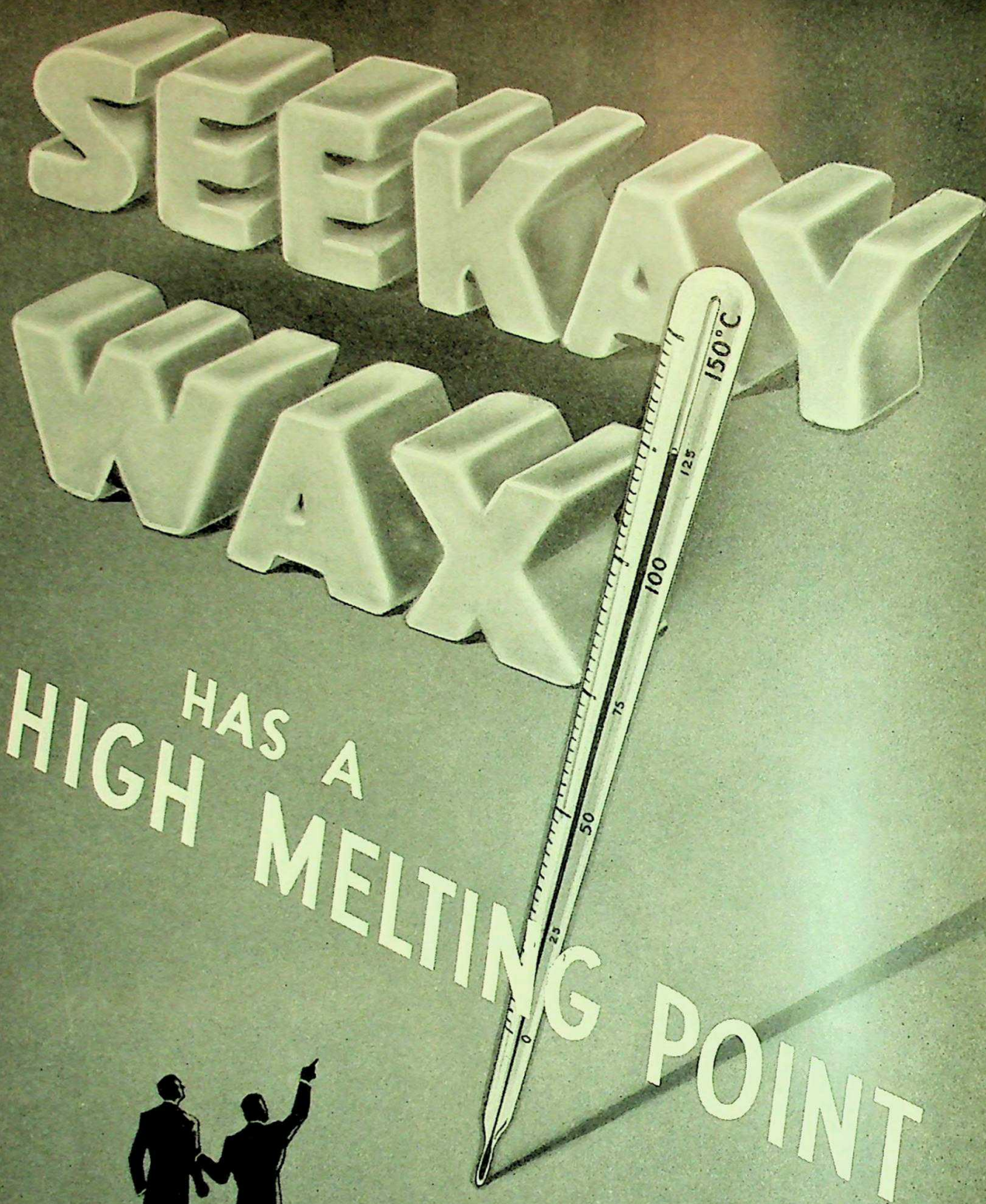
London Office: 203 Bush House (Centre Block), Aldwych, W.C.2.

Telephone: Temple Bar, 2903



# SEEKAY WAX

HAS A  
HIGH MELTING POINT



The need for a wax with a high melting point has long been recognised by the electrical industry.

Waxes normally used have relatively low melting points and are therefore unreliable when used in electrical equipment designed for use under conditions of high temperature.

"SEEKAY WAX," a synthetic material produced by the chlorination of naphthalene, is available in a range of melting points up to 125°C.

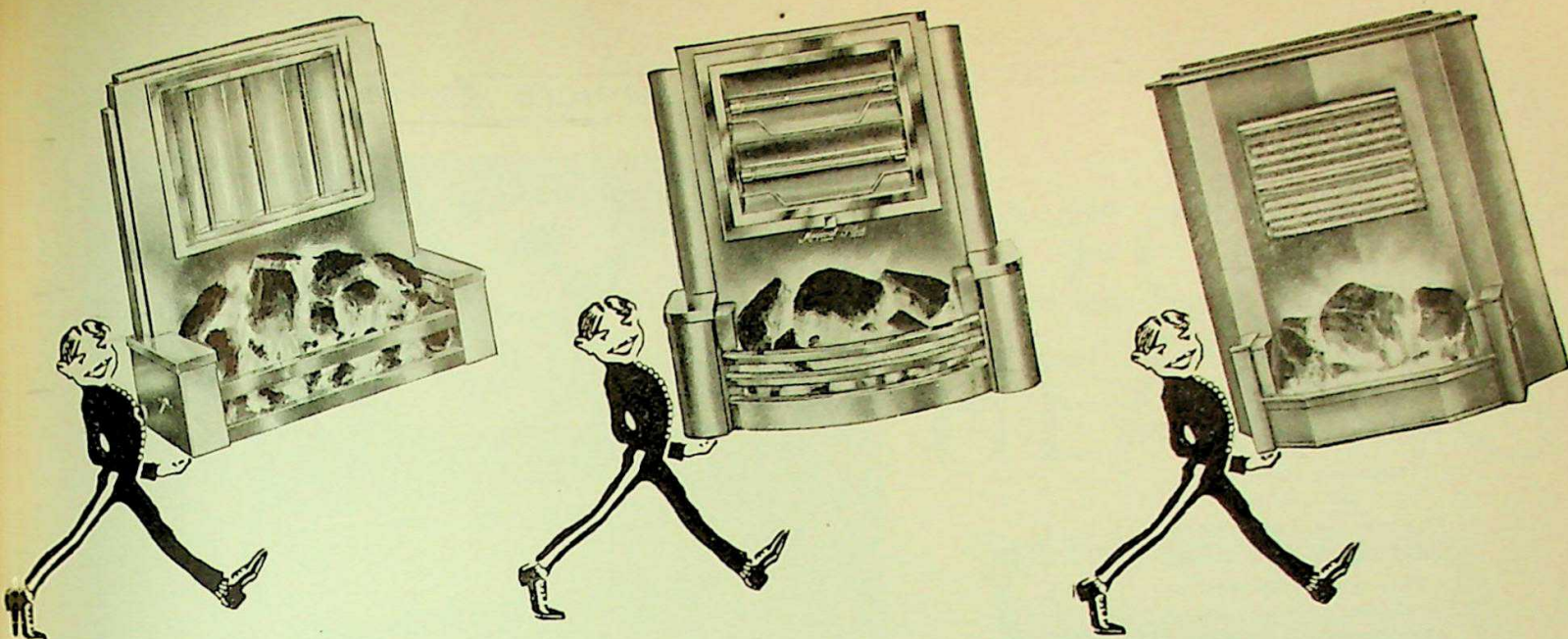
In addition to its high melting point, "Seekay Wax" is non-inflammable. Write for information relating to the suitability of "Seekay Wax" for your particular wax problem.

Enquiries should be addressed to:

## IMPERIAL CHEMICAL INDUSTRIES LIMITED

Room 170D2, IMPERIAL CHEMICAL HOUSE, LONDON, S.W.1



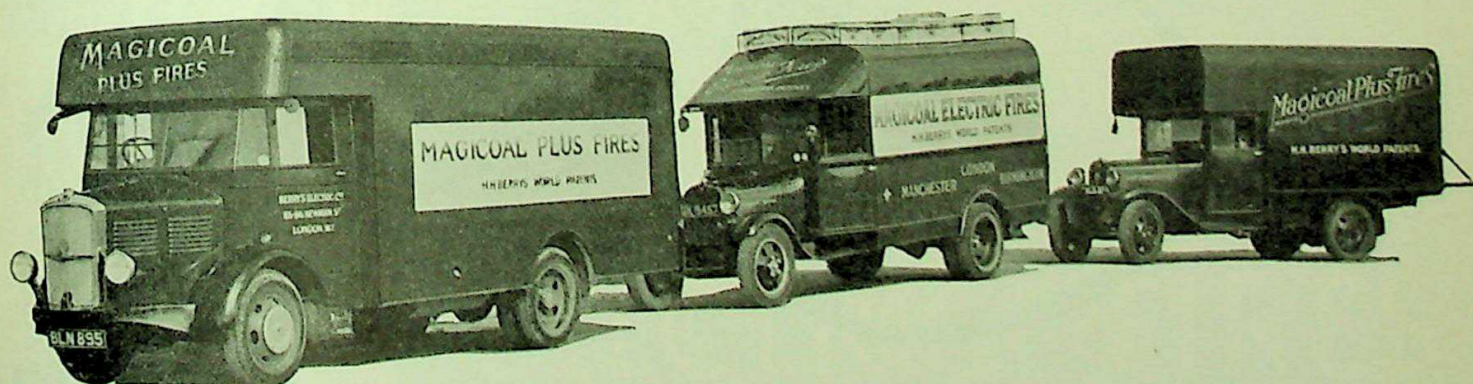


## WE ARE MAKING DELIVERIES AS FAST AS WE CAN, BUT—

the rush of orders is tremendous at the moment and has been for weeks past. We do not want you to disappoint your customers, so please help us to help you by ordering, as far as possible, well in advance of requirements.

*Please remember our Showrooms are at your service. Visit them yourself and send your customers along—many additional sales can be made that way.*

H. H. Berry's British  
and World Patents.



## BERRY'S ELECTRIC LTD.

TOUCHBUTTON HOUSE,

85 & 86, NEWMAN STREET, OXFORD STREET, LONDON, W.1.

Telephone: MUSEUM 6800 (9 lines).

Works: LONDON—Wembley.

BIRMINGHAM—Hall Green.

Branches: MANCHESTER: 5, Deansgate.

NEWCASTLE-ON-TYNE: 22, Oxford Street.

Sole Agents for Scotland: WOOD & CAIRNS, LTD., Edinburgh, Glasgow and Dundee.



ONE OF THE J.&amp;P. PAGES



*For those who miss the last train there  
is always the Crypt at St. Martin's.*

*Go to the*  
**ANNUAL FESTIVAL BALL**  
*at*  
Grosvenor House, W.1  
*and assist the*  
**ELECTRICAL INDUSTRIES  
BENEVOLENT ASSOCIATION**  
November 26th, 1935.  
*Tickets : 1 Guinea each.*  
JACK PAYNE AND HIS BAND.

An impression of  
Messrs. Cadbury's  
new premises at  
Bournville.

GOOD COCOA  
-GOOD CABLES

**J. & P.**

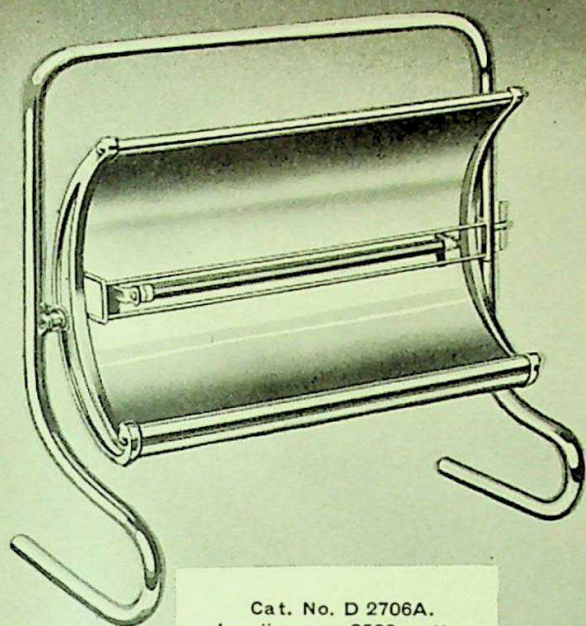
"C.M.A."

**JOHNSON**

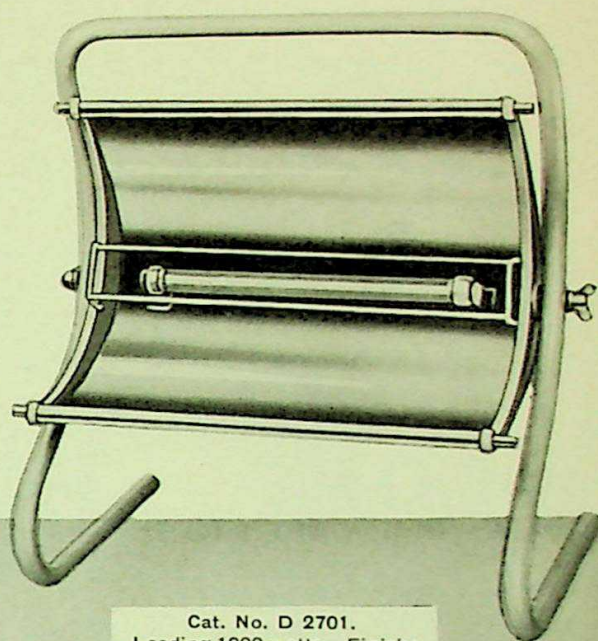


# G.E.C.

## ELECTRIC HEATING



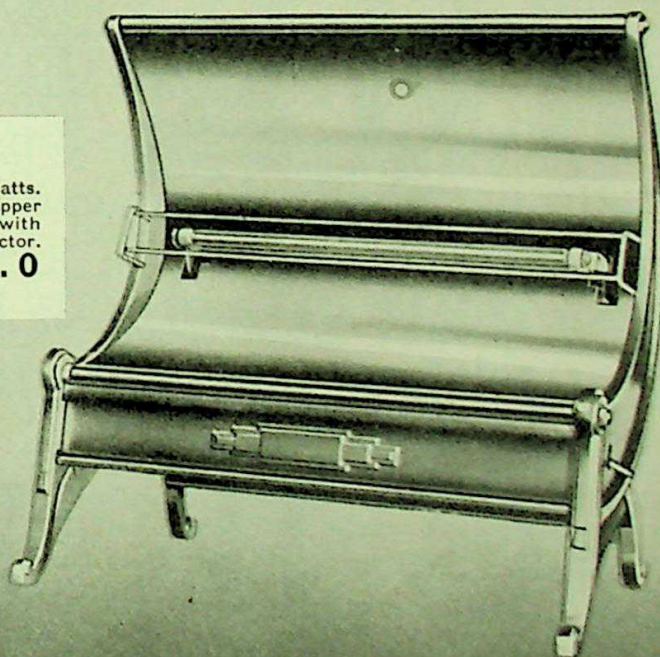
Cat. No. D 2706A.  
Loading - - 2500 watts.  
Finish: Chromium Plate  
throughout.  
Price **£4.15.0**



Cat. No. D 2701.  
Loading 1000 watts. Finish:  
Chromium Plate throughout. Price **32/6**  
or Red, Blue, or Green Enamel  
Tubing and End Brackets with  
Chromium Plated Reflector. Price **30/-**

ALL SUPPLIED COMPLETE  
WITH SIX FEET OF THREE-  
CORE FLEXIBLE CORD.

Cat. No. D 2704.  
Loading - - 2500 watts.  
Finish: Antique Copper  
or Antique Silver with  
Chromium Plated Reflector.  
Price **£3.0.0**



### LATEST REFLECTOR TYPES

SELECTED FROM  
THE NEW RANGE  
OF "MAGNET"  
ELECTRIC FIRES

MADE IN ENGLAND

## "MAGNET" ELECTRIC FIRES



ONE OF THE J.&amp;P. PAGES



BOURNVILLE Cocoa, food for a million homes, is made at the famous Bournville Works with the help of J.&P. "C.M.A." Cables. For 35 years we have supplied Messrs. Cadbury Bros. with all their V.I.R. Cable requirements for Bournville Works, and many thousands of miles have been installed. Such a Works, with such a demand for its products, would not run a risk of electrical breakdown. Could there be a finer testimonial than this for its electrical arteries — the cables?

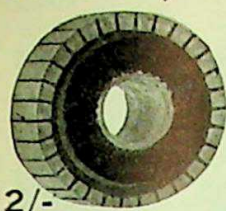
C A B L E S  
for 35 YEARS

& PHILLIPS L<sup>TD</sup> Charlton, London, S.E.7.





## "LESDIX" OFFERS YOU SOME MORE BIG VALUE BARGAINS



### COMMUTATORS 2/- EACH

For Motors and Dynamos 5 to 500 volts. Very solidly built up Copper Segments, mica insulated, pressure assembled on tubular centre, to slip on to armature shaft 24 Segments, 1 1/2" dia., 1/2" long, 1/4" bore. **ONLY 2/- EACH**  
30 Segments, 1 1/2" dia., 1/2" long, 7/16" bore. **ONLY 2/- EACH**  
**A/C WATTMETER**, Precision Lab., Sub. standard, 6" mirror scale, 4 element Moving Coil, Measures one or dual circuits or 3 phase 20 watts to 2kw. List £25. Quite new **£12 10s.** Transformer to 20 kw. **£3 10s.**

2/-

**TESTERS**, E. and F. D.C. Test Set mirror scale 150 div., 9 ranges, volts and amps, as new. Bargain **£7 5s.**  
**ANALYSERS**. Jewell D.C.—A.C. Multiple range adaptors. Need small repairs, cheap **£6 15s.** Type "K" all range 4 meter, set, A.C. and D.C., m/a and volts to 500, amps. to 20, Megohm Meter built in 20,000 ohms. to 50 meg. Perfect condition. Bargain **£8.**  
**MEGGER**s as new. Direct Reading 1,000 ohms to 10 meg. Long scale dial for Resistance makers, several Bridge Meggers 500 volts cheap. **SILVERTOWN** Portable Tester. Combines Wheatstone Bridge, Galvo, shunts and ratios, as new, **£8.** G.P.O. Plug-in Bridge Resistance Boxes, 142 m., to 8,000 ohms **60/-**.  
**TWO 8 1/2" DIAL RECORDERS**, for Draught or L.P. to 12" water, **37/6 each.**  
**CLOCK-IN** Staffsine Employees Time Recorder, **£3 10s.**  
**ANEMOMETER**. 6 dial type reading 1—1,000,000 c. air metres by Stanley, in pocket case, **50s.** Hill-Barnard Sphygmometer, 0-250 mHg., **10s.**

### SWITCHGEAR BOARDS. AUTO-CUTOUPS.

Relays. Float Switches. Ray Controls and Timing at lowest prices.

**A.C. to D.C. RECTIFIERS** for charging or motors. All steel clad. 1 1/4 kw. £30 model, new, with valve, for 200 to 250 volt. A.C. mains to output D.C. 220 volts 6 amps. Bargain **£17 10s.** 1 1/4 kw. Hewlett enclosed type, used, with new valve for D.C. output 210 volts 6 amps, **£15.** Westinghouse Dry Rectifier Charger for D.C. output 280 volts 1/2 amp., with meter and switch, Sale **£10.**

**CAR BATTERY CHARGERS**. A.C. with meter, 200/250 volts to D.C. 6 volts 6 amps. **£3 17s. 6d.** 12 volts 6 amps. **£4 17s. 6d.** D.C., 3 to 5 amps. off D.C. mains voltage **55s.**

**TRICKLE CHARGERS**. Tungal Trickle Chargers H.T. and L.T. 200/220 volts 2-4-6 volts 8 amps. D.C. and 60-90-120 volt 100 m.a. complete with valve **37s. 6d.** Vibrator Type with meter 6 volt 5 amps. **45s.** No. 136L D.C. Lamp Charger with Indicator **7s. 6d.**

**PROFITABLE CELL CHARGING** with Lesdix Trade Chargers. All types for 1 to 200 cells from 35s. to £35. Steel clad, multi-circuit Switchboards and Control Panels to any requirements at low prices.

**METERS**. **DIX-ONEMETER**, 50-range microamps. amps., millivolts and volts, ohms and meg. all on one Precision moving coil Meter with multipliers. Accurate and marvellously cheap, **55s.** Multipliers extra. Worth £10. The "Dix-Mipanta" is an a.c.-d.c. mains vest pocket, bakelite Voltmeter. List **£2.** Trade **19s. 6d.**  
**1,000** Switchboard, Service and Battery Meters in stock, lowest prices.

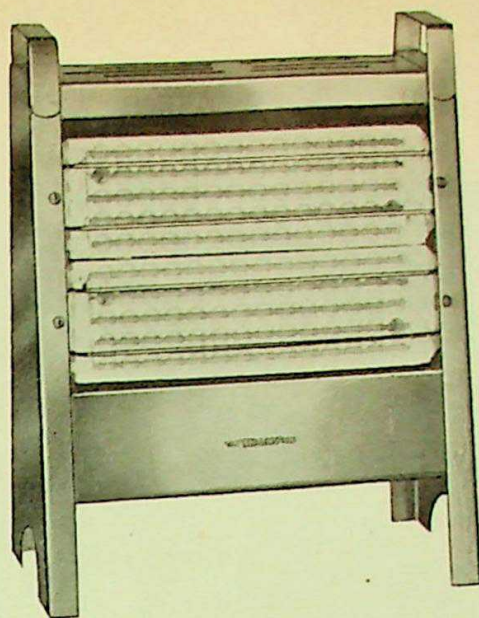
THOUSANDS OF OTHER BARGAINS CAN BE SEEN ON THE FOUR FLOORS OF OUR STOCK AND SHOW ROOMS.

Bargain Lists of Electrical, Mechanical and Scientific Apparatus sent on request.

## LESLIE DIXON & Co.,

218, Upper Thames Street, London, E.C.4.

Telephone: Central 4611.

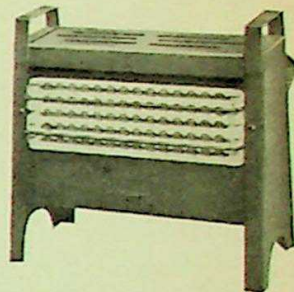


The  
"BELLING"  
DINKIE FIRE

2 kW. size  
List No. 602  
(Firebar Type) 17/6

1 kW. size  
List No. 601  
(Firebar Type) 9/6

(Both sizes are also obtainable fitted with projector type plug-in elements.)



Here is just the fire for your customers who need a reliable and efficient electric fire at a very low cost. It is really wonderful value for money. In antique silver, antique copper, antique brass or various synthetic enamel finishes.

## STOCK, SHOW and SELL

# "BELLING" ELECTRIC FIRES AGAIN THIS SEASON!

If you've not had your copies of the new 64-page "Belling" Catalogue write to-day for them. Ask also for supplies of the "Belling" Fire Folder; for a new attractive little display for standing on your counter and for supplies of the new Colour Chart, showing the variety of finishes in which "Belling" Electric Fires are obtainable.

SEE THE "BELLING" NATIONAL ADVERTISING IN THE "RADIO TIMES."



COME AND DANCE TO JACK PAYNE AND HIS BAND

on November 26th at Grosvenor House.  
Supper, Running Buffet, Cabaret and Jack Payne's "Cecilians" up to 11.40. At 11.45 JACK PAYNE AND HIS BAND.  
Tickets £1.1.0 from the  
Electrical Industries Benevolent Association, 36, Kingsway, W.C.2

## YOU ARE SAFE !



If you fit  
Amplec Washboilers

Their appearance sells them and their construction ensures years of trouble-free satisfaction.

Amplec Limited, ACCRINGTON, Lancs.

'Phone: 2706.

## BELLING & CO., LTD.,

Head Office & Works:  
BRIDGE WORKS, SOUTHURY ROAD,  
ENFIELD, MIDDX.

Telephones: Enfield 1123 and Enfield 2820 (6 lines).

London Showrooms: 313, Regent Street (1 min. north of Oxford Circus).

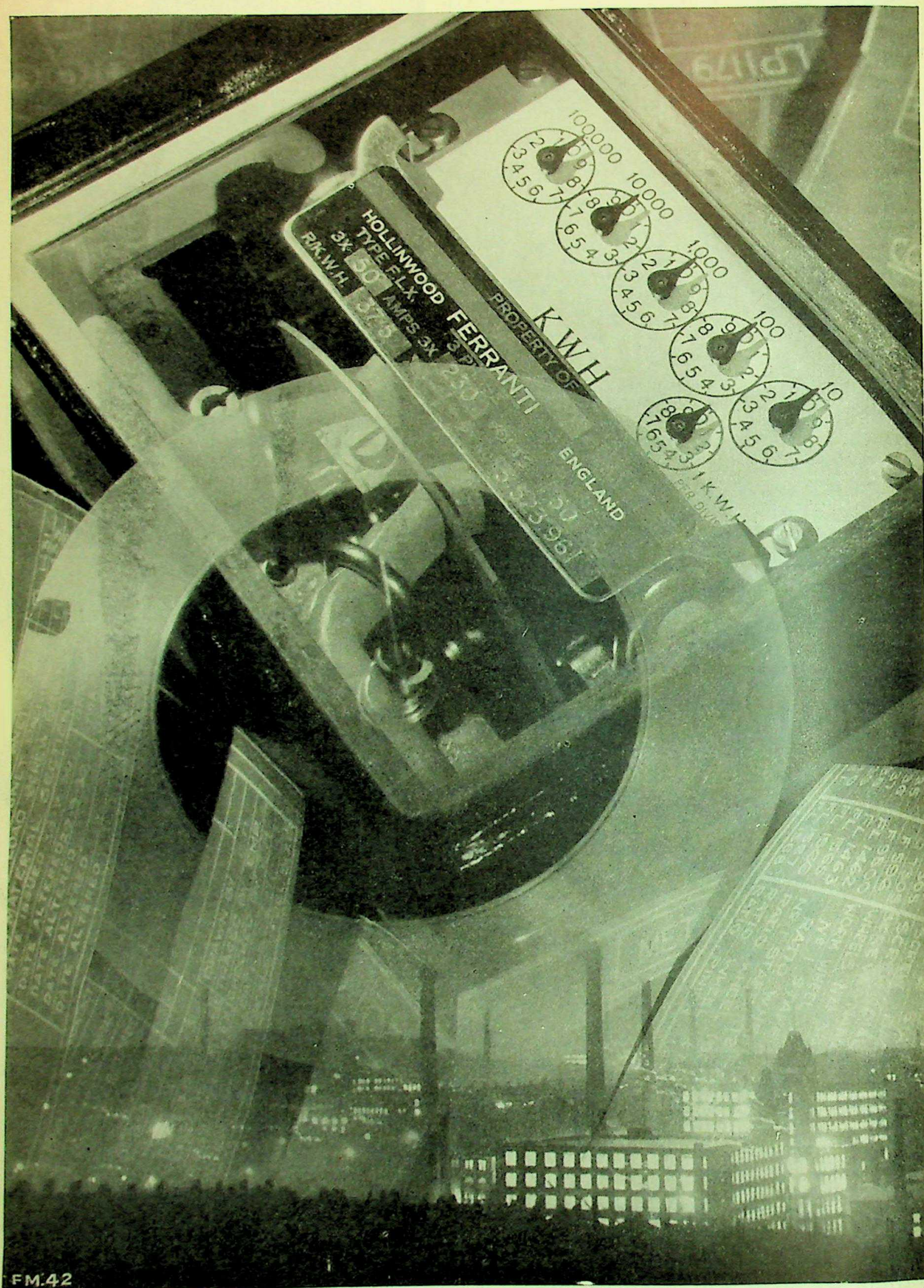
GLASGOW: 200, St. Vincent Street (Central 4015).

BRISTOL: 2-5, Nelson Street (Bristol 24061, 3 lines).

BELFAST: 10, Royal Avenue (Belfast 2846).

CAPE TOWN: R. G. Jack & Son, 47-51, Burg Street.







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Ironfounders  
To H. M. The King

# CARRON

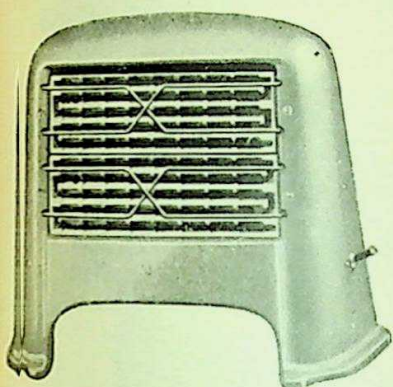


Founded 1759.

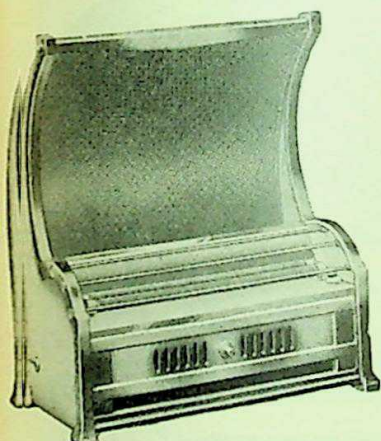
## ELECTRIC FIRES

*first for*

### RELIABILITY-BEAUTY-ECONOMY



THE 'SIRIUS'



THE 'SUNGLO'



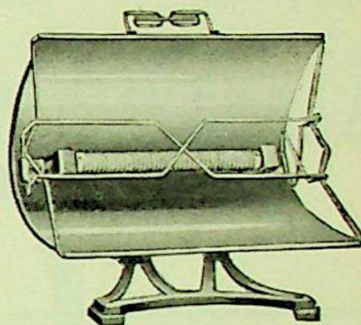
THE 'HOWE'

SHOWN here are a few examples of the large range of Carron Electric fires.

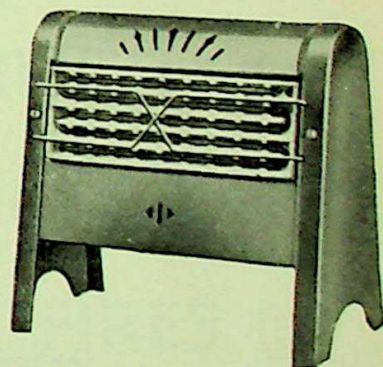
No fires are easier to sell. At a glance their advantages are obvious. The variety in design and the wide selection of sizes and colours render them suitable for every type of room, and enables them to harmonize with any scheme of decoration.

All Carron fires, irrespective of price, are made and finished with the expert workmanship and material which is the hall-mark of a firm whose name alone is a guarantee.

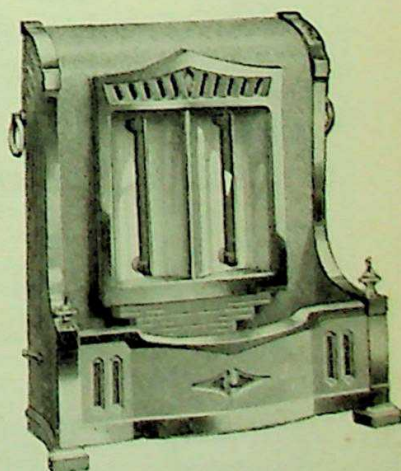
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THE 'STAR'



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**CARRON COMPANY. Works: CARRON, FALKIRK**



A Good Building  
is firmly founded . . .

GOOD WIRING  
is founded on  
**Lewcos**  
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V.I.R. CABLES



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(FOR HEAT, LIGHT AND RADIO)**SINGLE SWITCH****EITHER-LITE ADAPTOR****DOUBLE SWITCH**BRING THE  
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WITHIN  
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A Type for every purpose. Each the best of its kind.

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**ATTRACTIVE DISPLAY BOARD**

—an elegant wooden "cut-out" fitted with complete range of actual switches.

**MODERN and COMPELLING***it will bring you good business.***"SAFEWAYS" are QUALITY SWITCHES**

yet competitive in price.

ENTIRELY BRITISH MADE — and constructed of solid BAKELITE cases.

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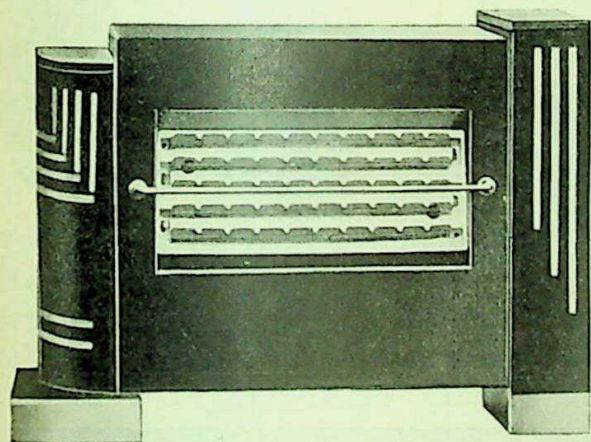
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modern design and pleasing colour finish of

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**ELECTRIC FIRES**

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Here are two new REDOT models that we believe will be winners during the coming season. They are most attractively finished in sprayed copper or silver, or red, pale green or blue.

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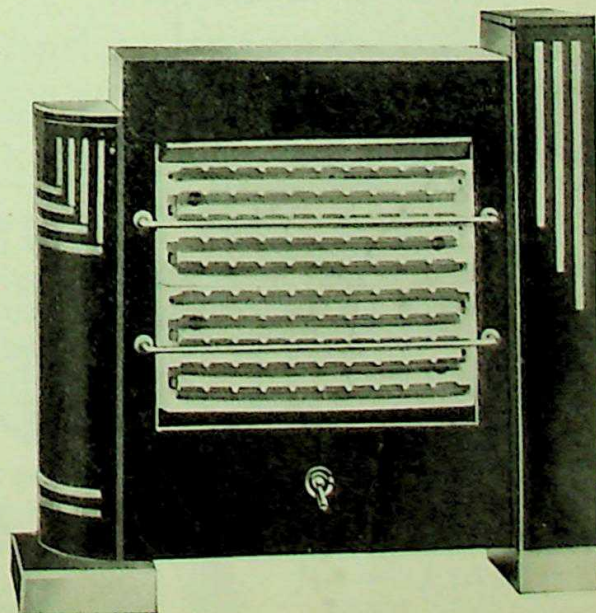
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Receiving Sets  
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FROM  
THE ASSOC.  
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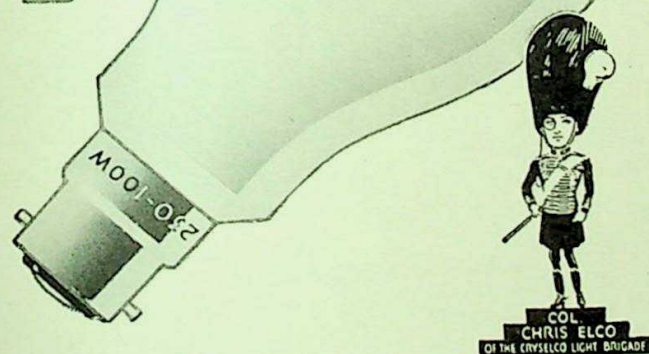


**W**hilst we hate to turn away  
business we think we should  
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Telephone: Malden 1551.  
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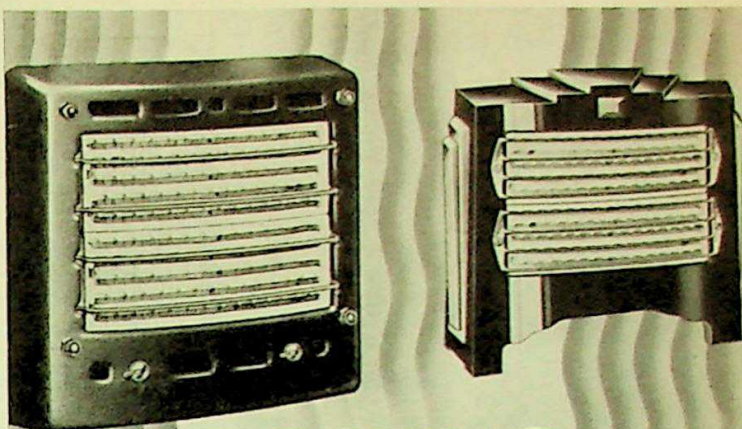


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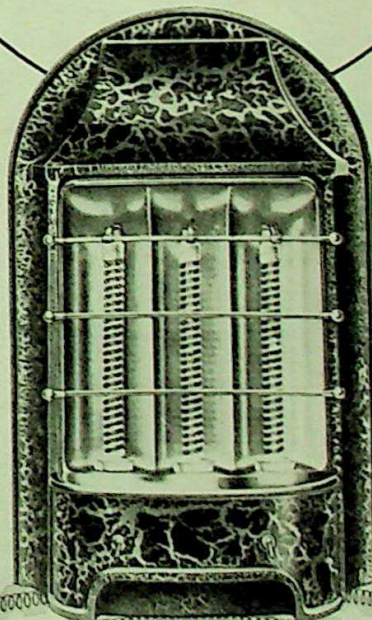
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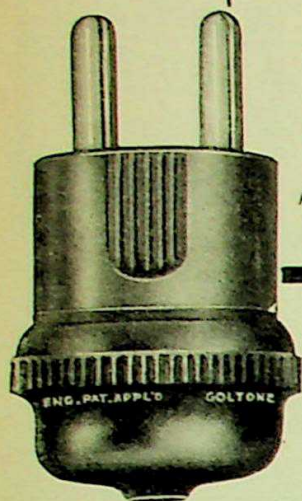
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-AN ADAPTOR

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Most ingenious, reliable, and safest  
of all Combined Plug-Adaptors.  
Infallible Action.

No loose parts, cords or springs.  
Easily wired with an efficient Cord  
Grip.

Interchangeable with all standard  
5-Amp. 2-Pin Sockets and B.C.  
Holders.

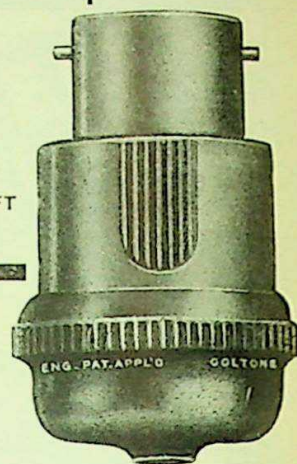
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Supplied in Ebony Black, Brown, or  
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10/- per doz., subject.

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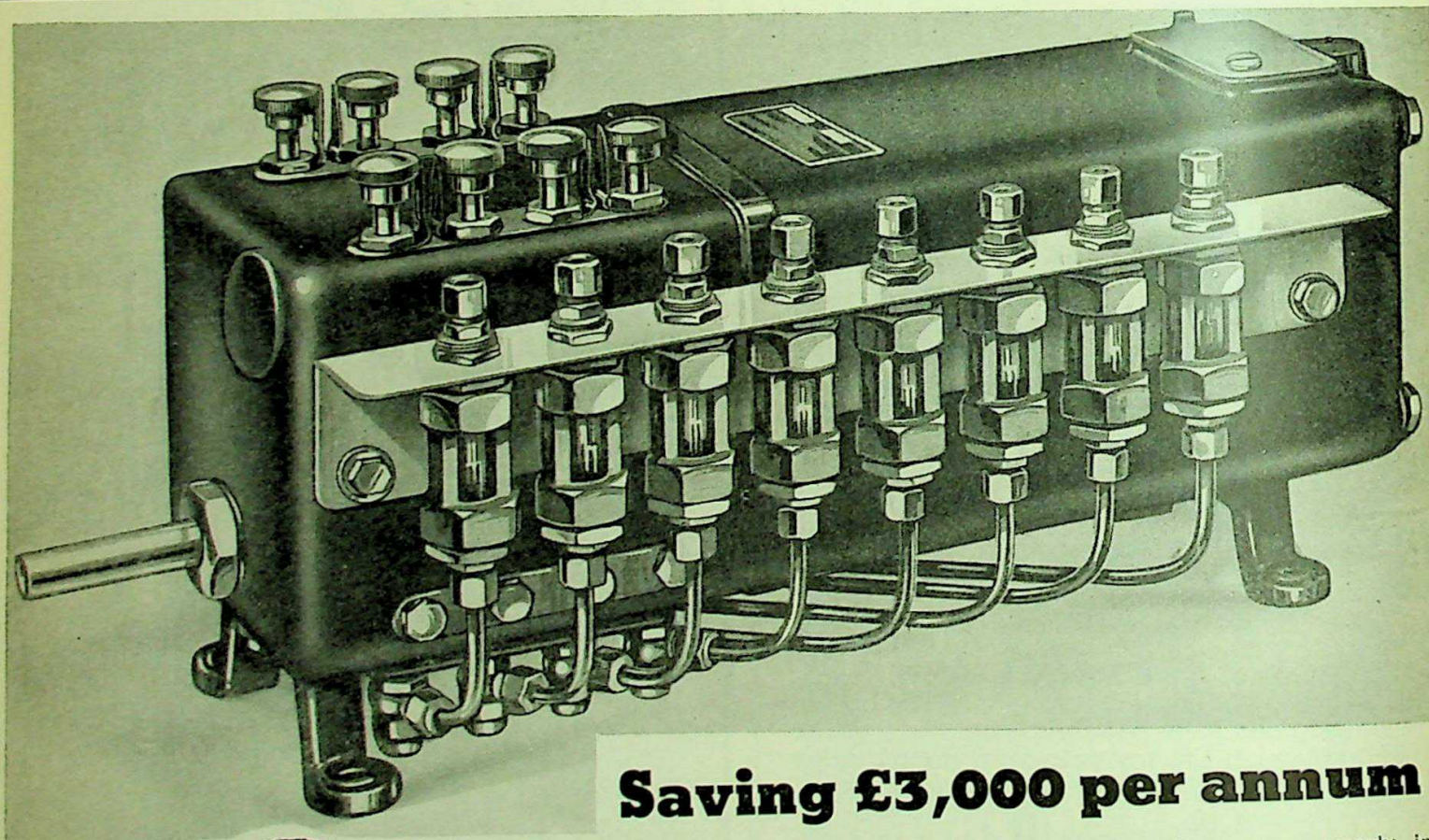
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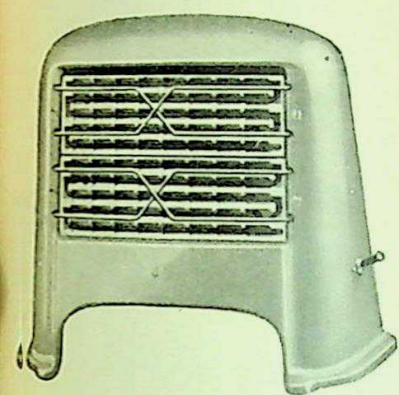


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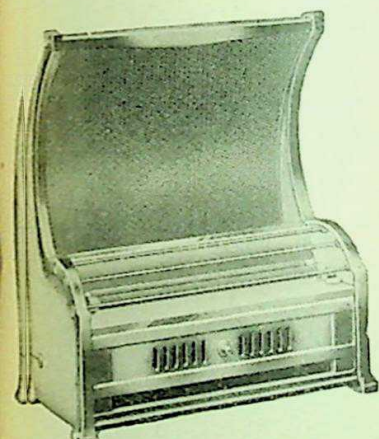
## ELECTRIC FIRES

*first for*

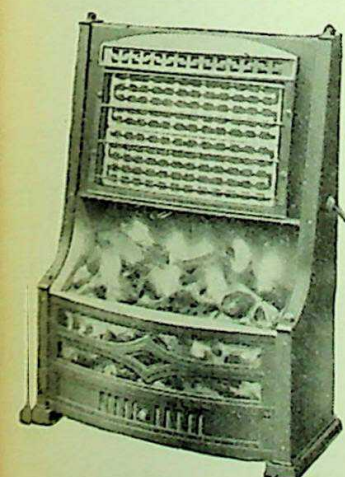
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THE 'SIRIUS'



THE 'SUNGLO'



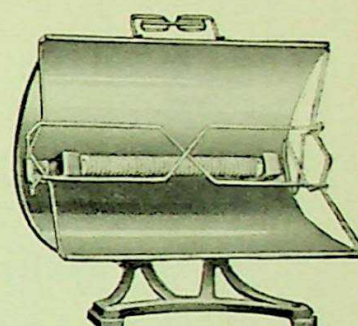
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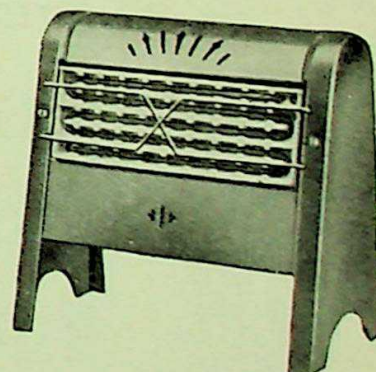
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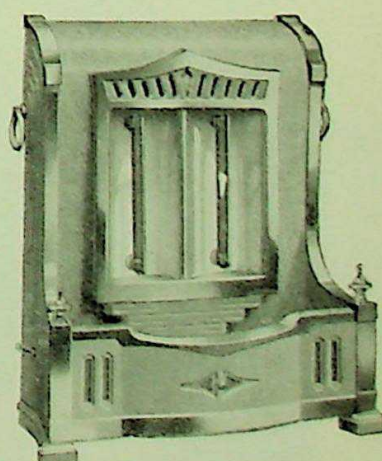
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THE 'BEACON'



THE 'STAR'



THE 'LOUNGE'

**CARRON COMPANY. Works: CARRON, FALKIRK**



# A MILLION

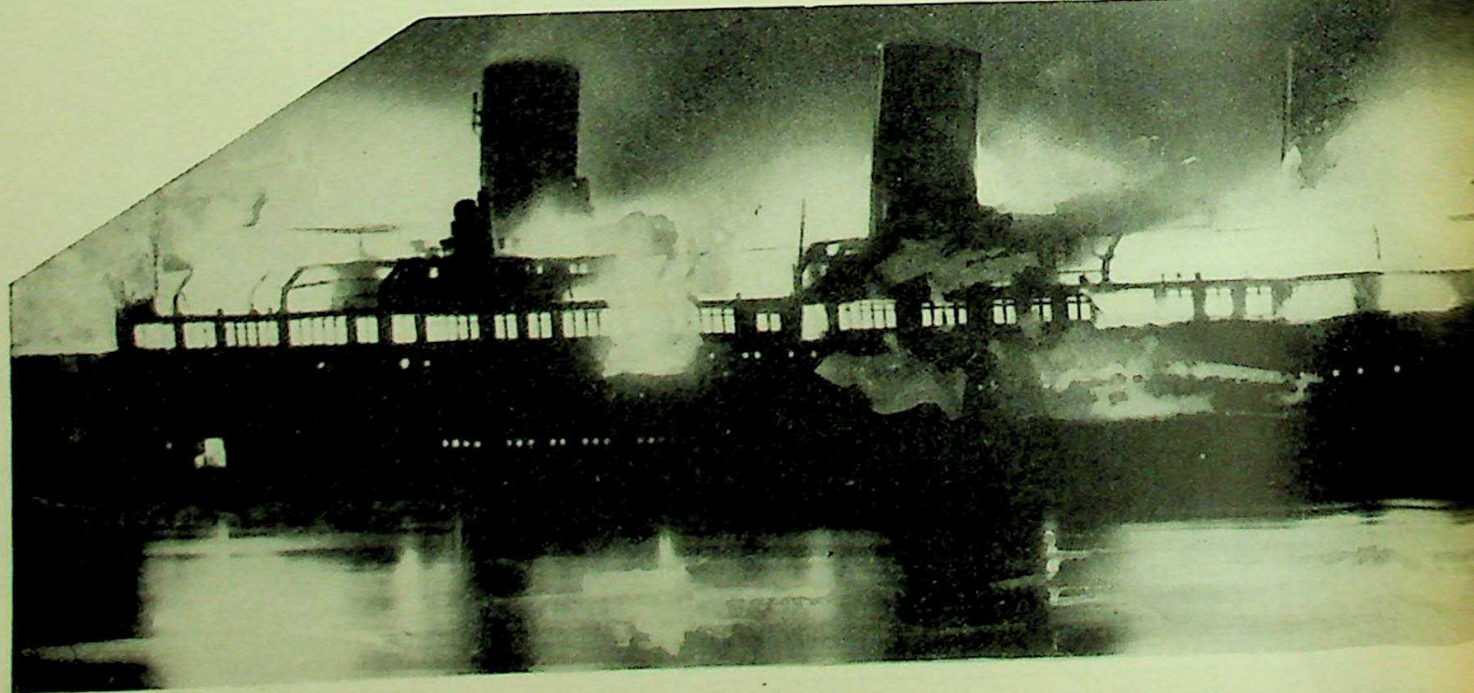


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**MINERVA**  
**NON-INFLAMMABLE**  
**CABLE LACQUER**

An outbreak of fire is one of the most dangerous happenings on board ship, or anywhere where human life is in peril. Risks of these calamities arising from electrical short circuits can be eliminated by the use of MINERVA NON-INFLAMMABLE LACQUERS on exposed cables.

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These new MAGNET Electric Fires are designed for standing in the fireplace so as to cover completely the existing grate. Fitted with Reflector elements.

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Three New Screen Models from the Latest Range of  
"MAGNET"

# ELECTRIC FIRES





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MAGICOAL - "PLUS"

REGD. DESIGN. H. H. BERRY'S  
BRITISH & WORLD PATENTS.

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**We are making deliveries  
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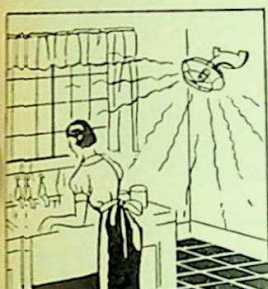


# PREMIER PORTABLE-HEAT

## WHERE IT'S WANTED— WHEN IT'S WANTED



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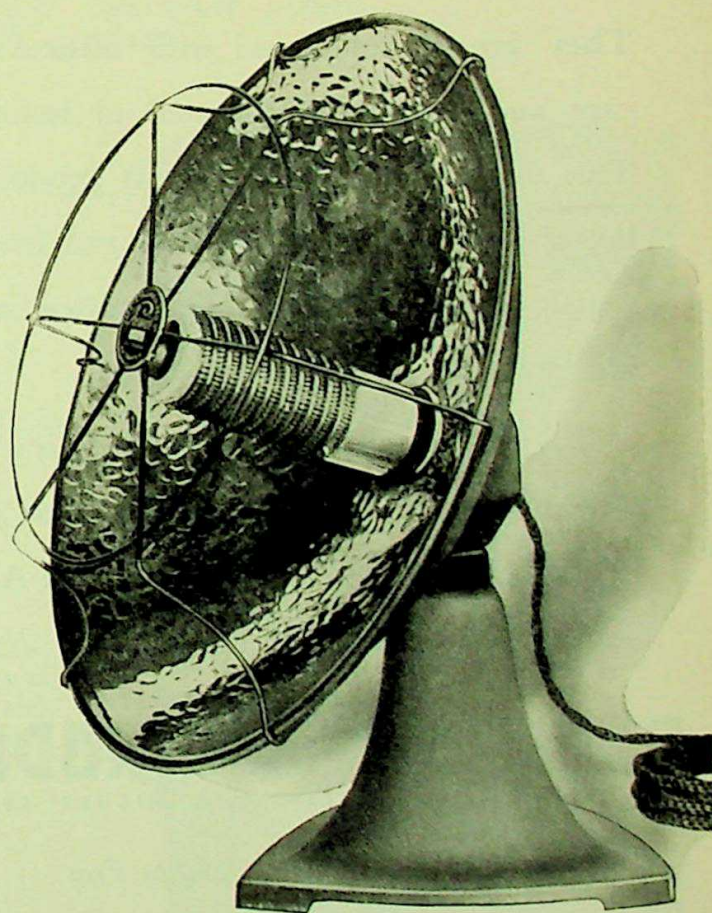


IN THE KITCHEN.



IN THE OFFICE.

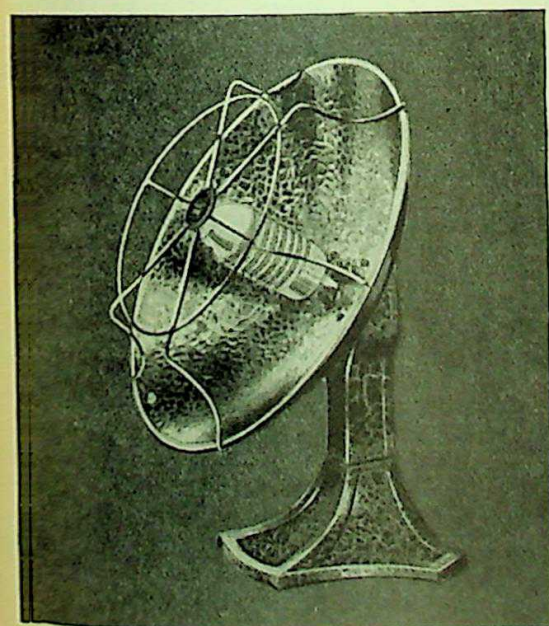
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THE "REGAL"

Illustration above shows the No. 1157 Premier Fine-Quality Bowl Fire. Fitted with plug-in element and 2 yards suitable "flex." Current consumption 600 watts. Diam. of bowl 11½ ins. Price 10/6. Chromium plated bowl 2/- extra.

Illustration at left shows the "Reflex" No. 1156. Supplied 2 yards suitable "flex," price 12/3.



THE "REFLEX"

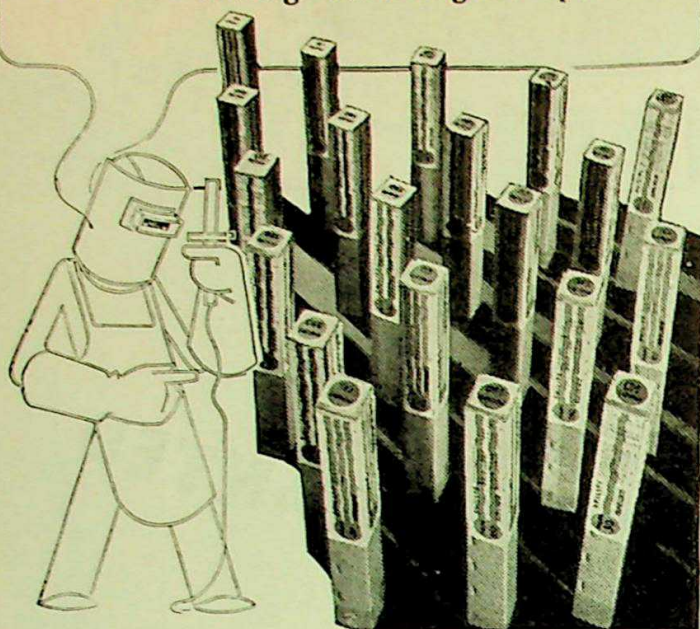
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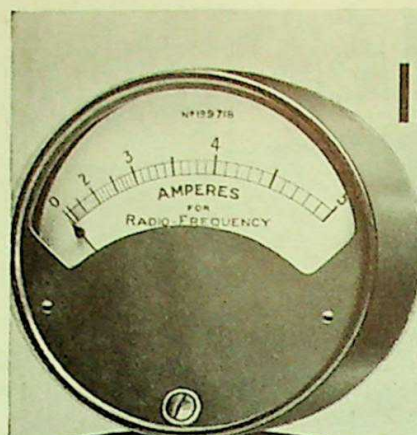
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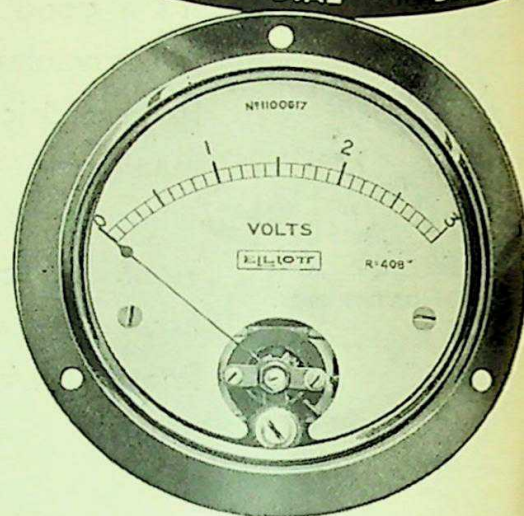
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FOR  
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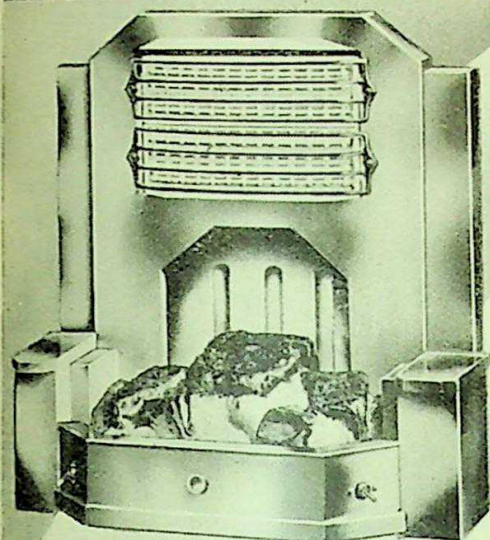
TELEPHONE  
LEE GREEN 4646



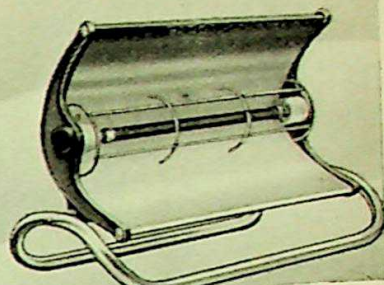
# ENGLISH ELECTRIC

## DOMESTIC ELECTRIC PRODUCTS

### EXAMPLES FROM THE RANGE



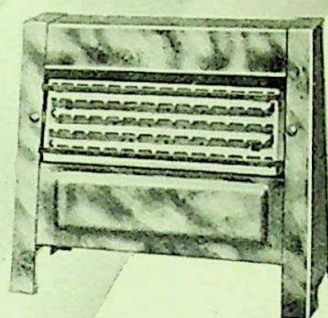
**COAL EFFECT FIRE**  
Cat. No. HH 150. 2 kw.  
Finished either in  
Oxy-Silver or Oxy-  
bronze.



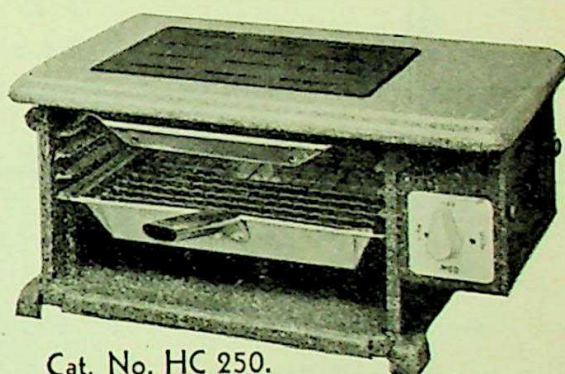
Cat. No. HH 113. 1 kw.  
Chromium-plated  
reflector and tubular  
frame.



Cat. No. HH 114. 1 kw.  
Chromium-plated  
reflector.



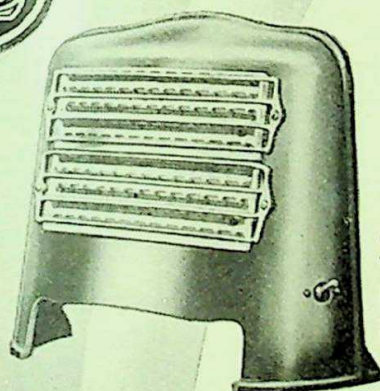
Cat. No. HH 140. 1 kw.  
Made also in 2 kw.  
size.



Cat. No. HC 250.

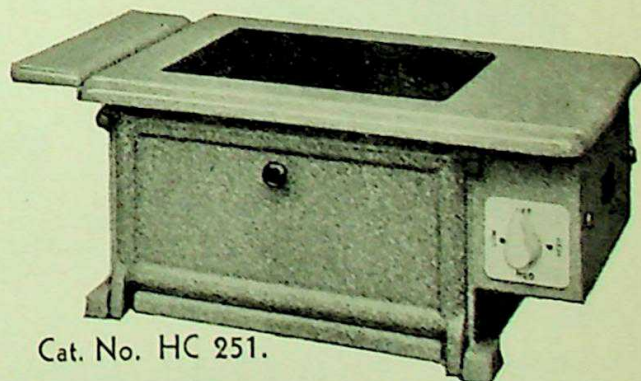
### BREAKFAST COOKER PRICE 58/6

Extra for drop down door 3/-  
Extra for hob-extension 2/-



Cat. No. HH 102. 2 kw.  
Vitreous Enamel  
Finish. Made also  
in 1 and 3 kw. sizes.

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THE RANGE OF 'ENGLISH ELECTRIC' FIRES  
COMPRISE: PORTABLE—REFLECTOR—INSET—  
MANTEL SURROUND—WALL-TYPE SURROUND  
—COAL EFFECT—



Cat. No. HC 251.

Made in a variety of designs  
and artistic colours.

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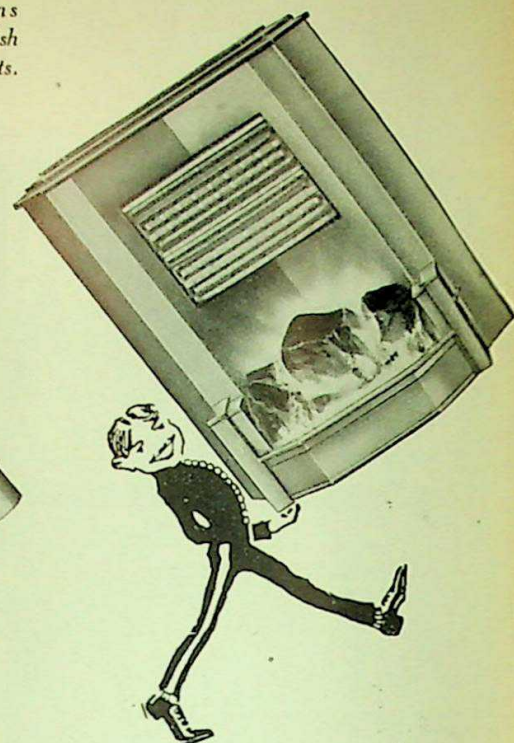
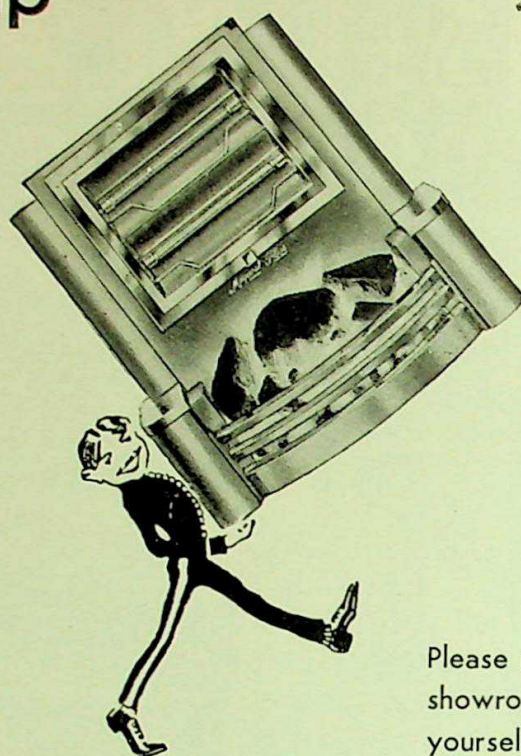
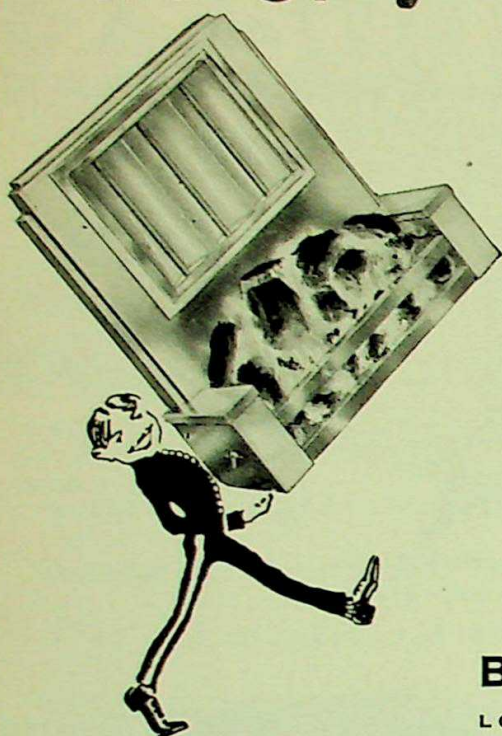
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DOMESTIC, HEATING & COOKING APPLIANCE, WORKS,  
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Regd. Designs  
H. H. Berry's British  
and World Patents.

sales go up —  
and UP —  
and UP !

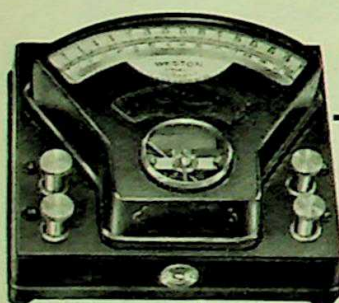


Please remember our magnificent remodelled showrooms are at your service. Visit them yourself and send your customers along. Many additional sales can be made that way.

**BERRY'S ELECTRIC LTD.**

LONDON • BIRMINGHAM • MANCHESTER • NEWCASTLE-ON-TYNE

## ELECTRICAL MEASURING INSTRUMENTS



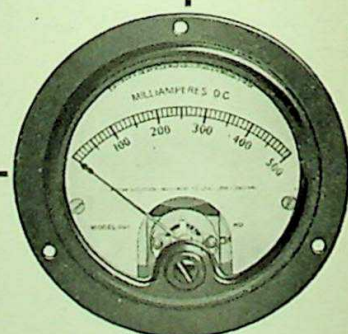
from laboratory standard instruments accurate to within one-tenth %.

**WESTON**

*Standard the World over*

PIONEERS SINCE 1858

—to miniature panel instruments for D.C., A.C. and R.F. Also special instruments for special purposes.



CONSULT THE WESTON

ELECTRICAL INSTRUMENT CO. LTD., SURBITON

FOR ALL PURPOSES

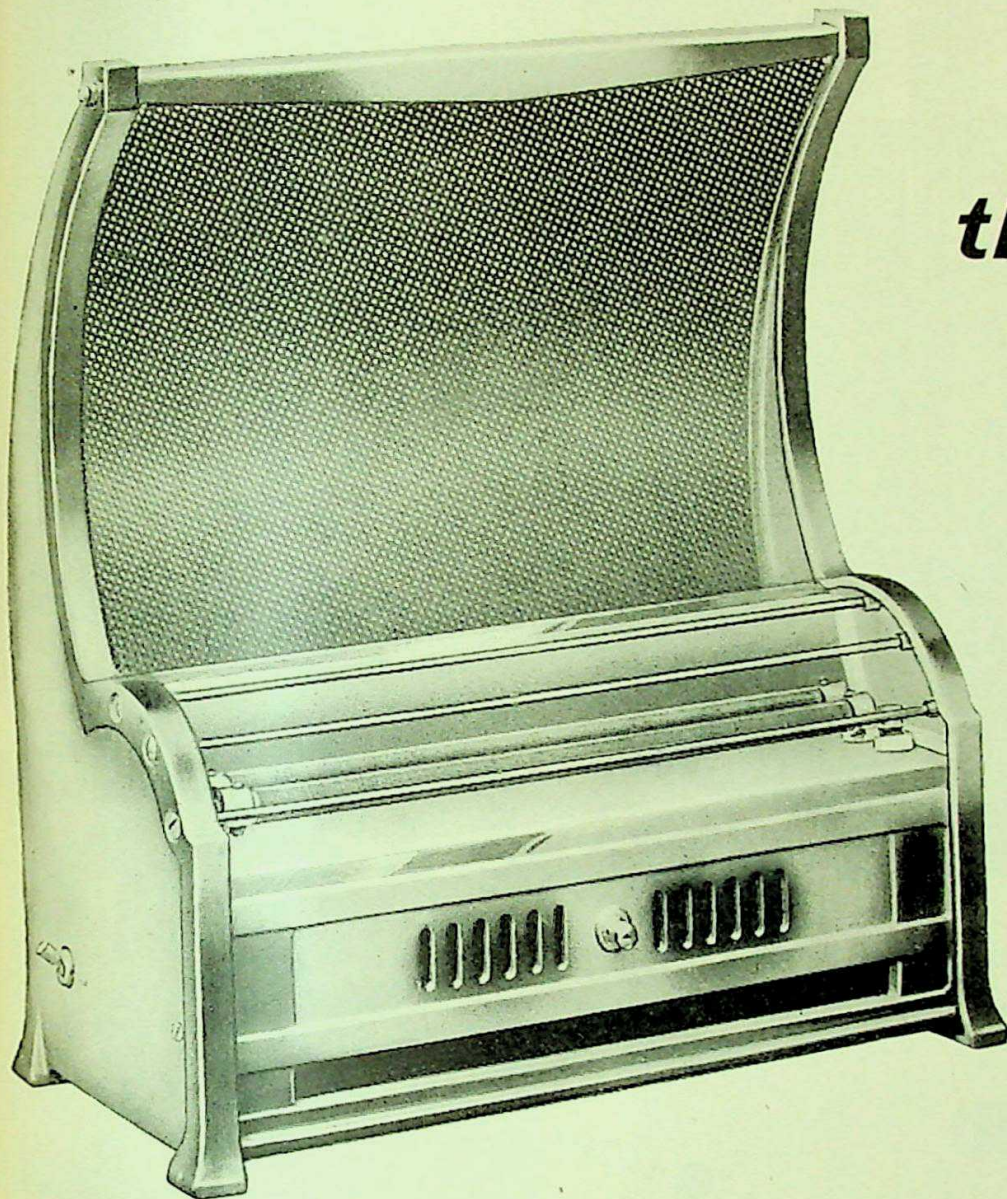




By Appointment  
Ironfounders  
To H.M. The King

# For cosy radiant warmth

# *all over the room—*



## THE 'SUNGLO'

This beautiful Carron electric fire gives a very bright and cheerful glow, with a distribution of radiant warmth over an exceptionally wide angle.

Its new type of Heating Elements not only improves its appearance, but also gives a particularly rapid response to the switch. The 'Sunglo,' finished in Art Silver, with Chromium Trough Reflector and Copper Back, costs £2. 17. 6., or, alternatively, in all Chromium finish with Copper Back, the price is £3. 15. 0. Put the 'Sunglo' in your showrooms and enjoy quick sales and a generous profit.

# CARRON

## ELECTRIC FIRES

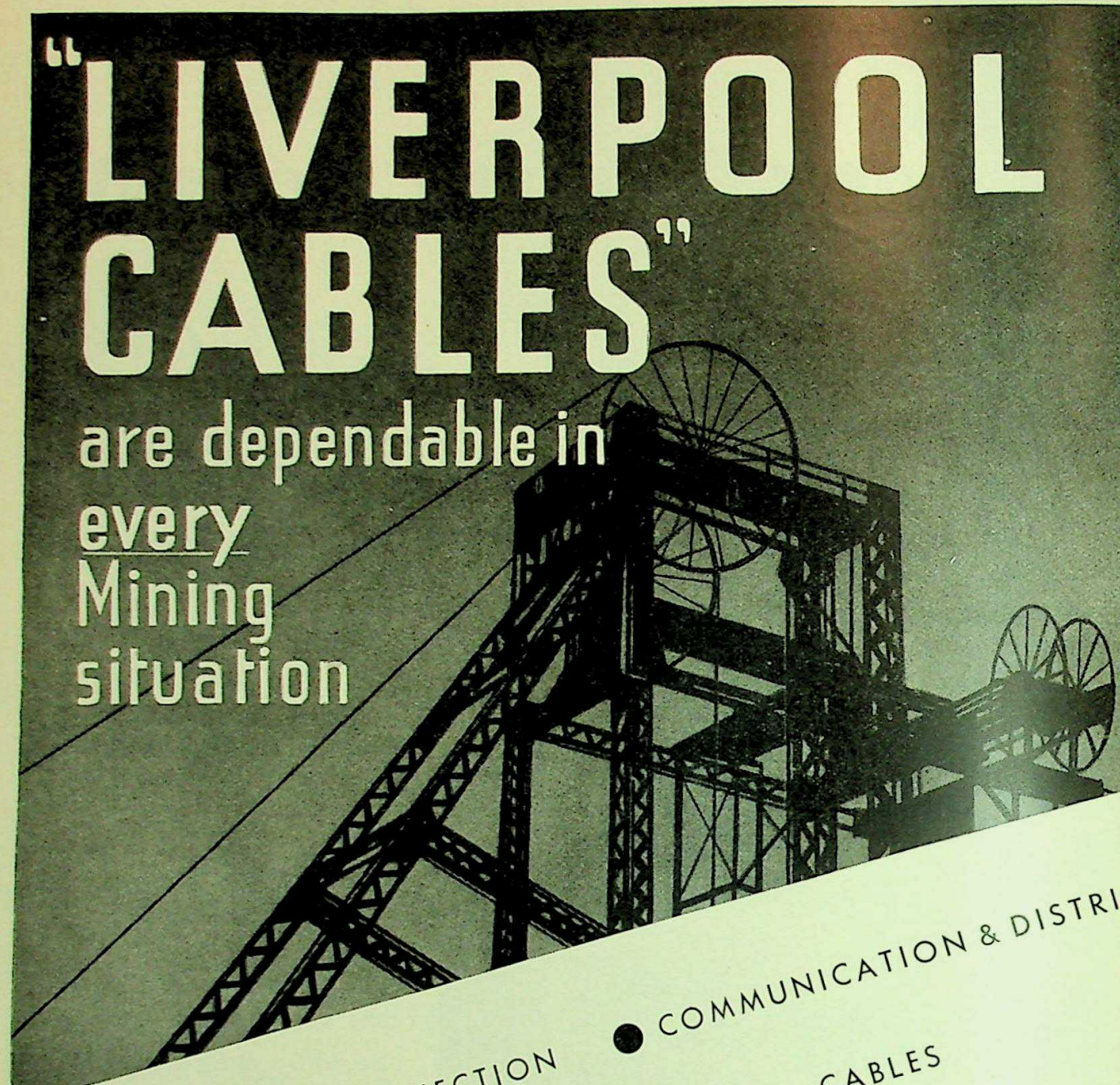


CARRON COMPANY Works: CARRON, FALKIRK



# "LIVERPOOL CABLES"

are dependable in  
every  
Mining  
situation

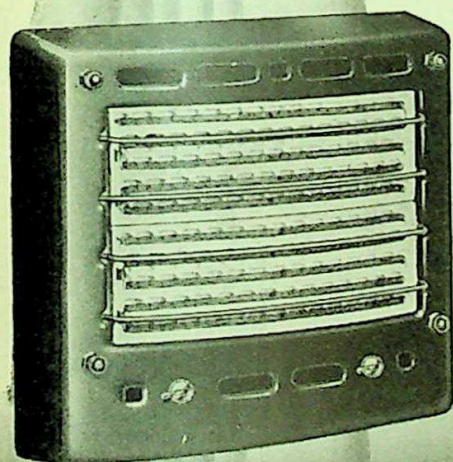
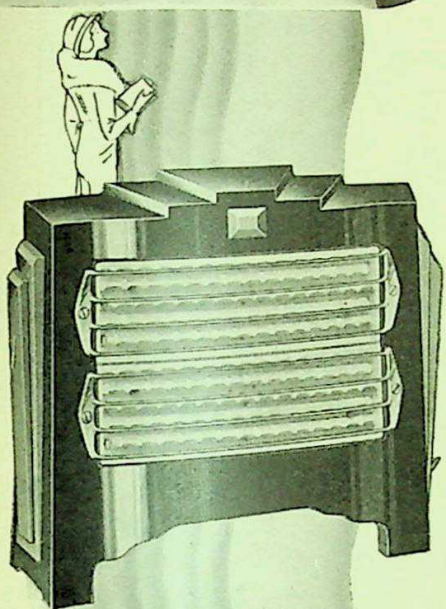
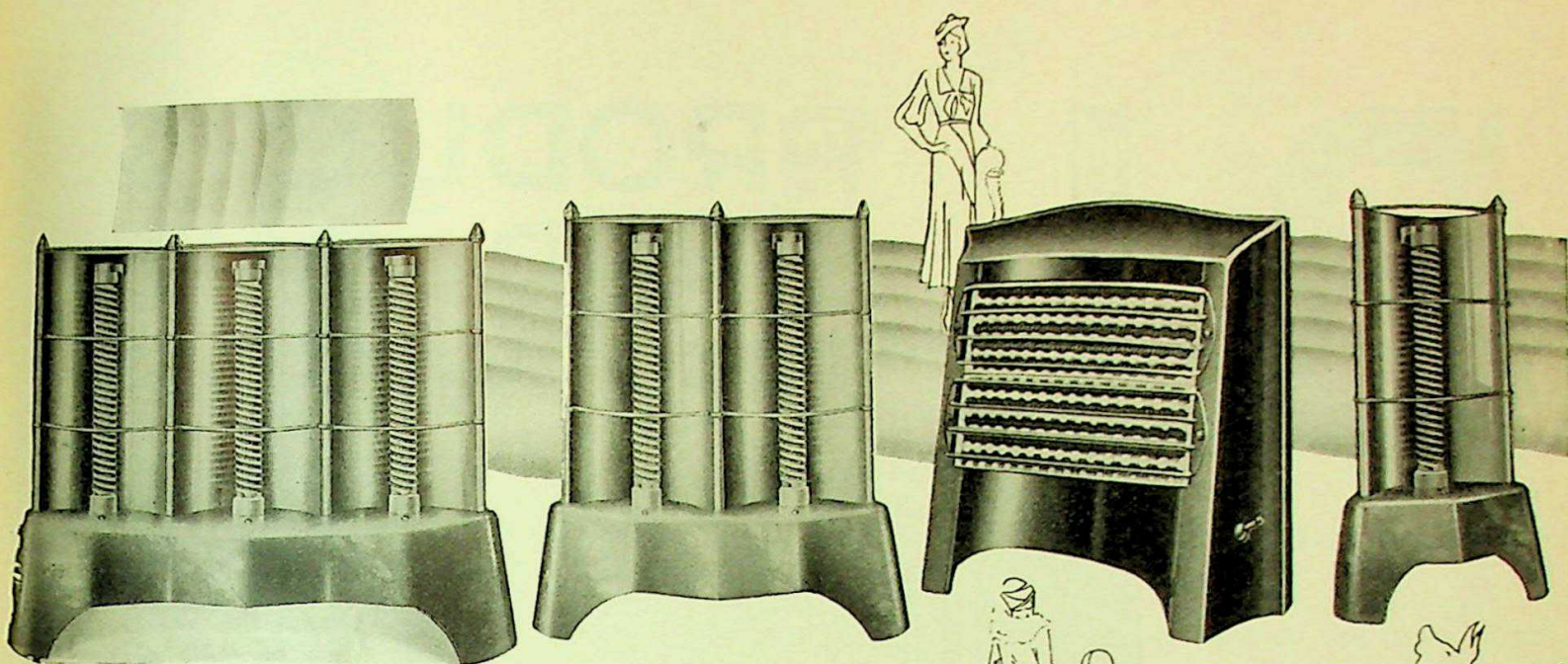
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- COLLIERY INTERCONNECTION
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"LECITE" (Regd.) Ribbon Screen Trailing Cables give longer life, maximum efficiency and greater resistance under exacting conditions.

*We shall be pleased to send you full particulars.*

THE LIVERPOOL ELECTRIC CABLE COMPANY LIMITED. Linacre Lane, Bootle, LIVERPOOL.





# Jackson

## ELECTRIC FIRES

Assure **SATISFACTION**  
and always make  
**READY SALES**

Season 1935/6

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**The Jackson Electric Stove Co., Ltd.**  
**143, Sloane Street London, S.W.1.**

'Phone:-  
SLOANE 6248 (3 lines)

WORKS, LUTON, BEDS.

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# B.I. PRODUCTS STAND OUT EVERYWHERE

## PAPER INSULATED CABLES

It is true we were the pioneers of paper insulated cables in this country but that alone is not the reason for the high standard of B.I. Cables. The great advantages of having the whole of the various processes in the manufacture of cables, from the refining of the copper to the lagging of the drums, under our own control, the constant research, the continuous extending and modernising of our works, are the reasons why B.I. Paper Insulated Cables stand out everywhere.



**BRITISH INSULATED CABLES LTD., PRESCOT, LANCS.**

Tel. No. Prescott 6571. London Office, Surrey House, Embankment, W.C.2. Tel. No. Temple Bar 4793, 4, 5 & 6.



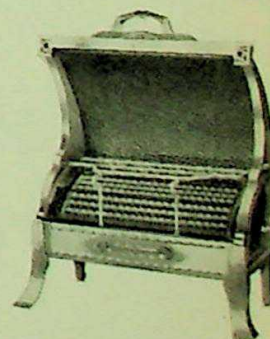
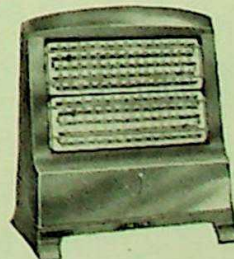
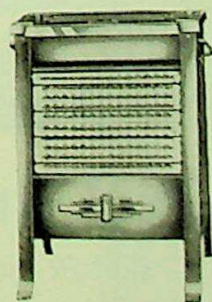
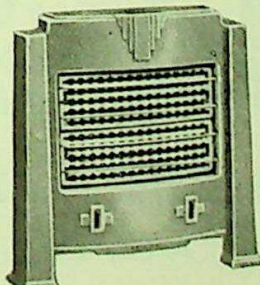
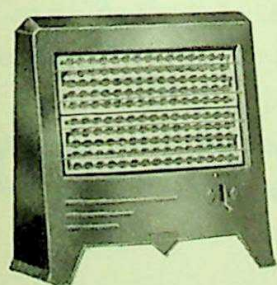
# LIFE'S LIKE THAT!

You open your morning paper and you see that there are nearly 2,000,000 unemployed ; but if you walk down Southbury Road, Enfield, you will see a large notice outside our Works—"Hands wanted." It has been there some time now, and looks like staying there. You people could help us if you liked. There has been such a tremendous rush on our new Dinkie, New Cheery and Regent Fires (and quite a few other models, too), that we simply cannot turn them out fast enough. Yet we have got five perfectly good fires, of which we can give *immediate* delivery. These are the five :—

**BEACON** 1, 2 & 3 kw. **PILLAR** 1, 2 & 3 kw. **BUNGALOW** 1, 2 & 3 kw. **VICTOR** 1, 2 & 3 kw. **REFLECTOR** 2 & 3 kw.

Now, there's a big chance for you to do a little friendly act. We shall look anxiously at our post in the next few days, to find out how many of our good friends have sent us an order for some of these fires.

## "BELLING"



**BEACON FIRE**  
List No. 924. 1kW. 18/6  
List No. 925. 2kW. 27/6  
List No. 926. 3kW. 37/6  
*In beige, blue, brown, green, grey or black enamel.*

**PILLAR FIRE**  
List No. 971. 1kW. 27/6  
List No. 972. 2kW. 37/6  
List No. 973. 3kW. 50/-  
*In apple green, blue, beige or grey majolica enamel.*

**BUNGALOW FIRE**  
List No. 990. 1kW. 21/-  
List No. 991. 2kW. 30/-  
List No. 992. 3kW. 37/6  
*In antique brass, copper, silver or in black.*

**VICTOR FIRE**  
List No. 941. 1kW. 20/-  
List No. 942. 2kW. 30/-  
List No. 943. 3kW. 40/-  
*In blue, brown or green mottled enamel.*

**REFLECTOR FIRE**  
List No. 652. 2kW. 57/6  
List No. 653. 3kW. 65/-  
*In antique copper.*

**BELLING & CO. LTD., Head Office & Works, Bridge Works, Southbury Road, ENFIELD, MIDDLESEX.**

Telephones: Enfield 1123 and Enfield 2820 (6 lines.)

London Showrooms: 313, Regent Street (1 min. north of Oxford Circus).

GLASGOW

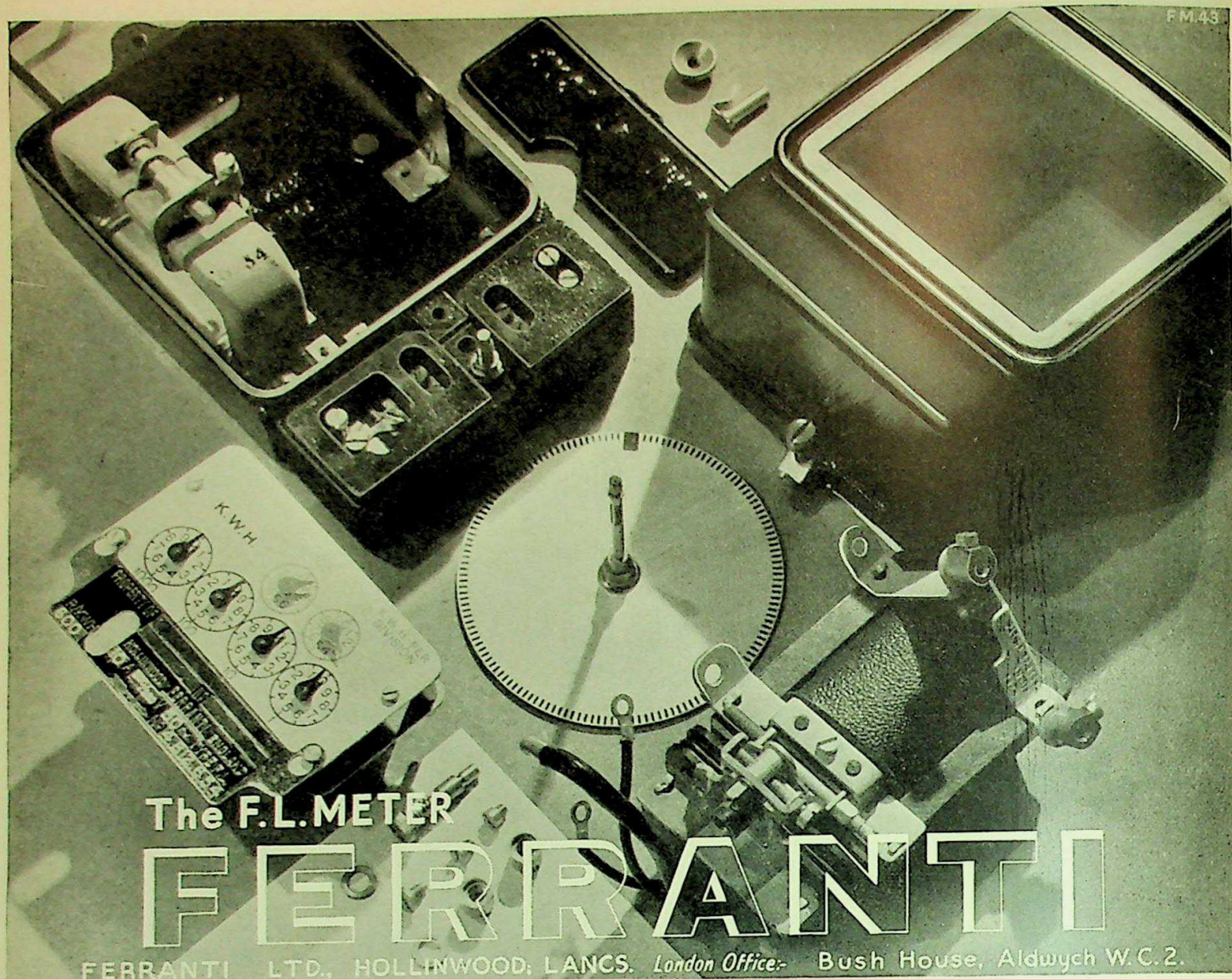
BRISTOL

BELFAST

CAPE TOWN

200, St. Vincent Street (Central 4015) 2-5, Nelson Street (Bristol 24031, 3 lines) 10, Royal Avenue (Belfast 2848, R. G. Jack & Son, 47-51, Burg Street.





The F.L.METER  
**FERRANTI**

FERRANTI LTD., HOLLINWOOD, LANCS. London Office:- Bush House, Aldwych W.C.2.



If you instal P. & G. and E.P.S. Batteries there can be no doubt about the satisfaction you will give your clients. Cells that have stood the test for over half a century have a reputation to be envied.

Emergency lighting in hospitals, cinemas, theatres, hotels, etc. should be equipped with the "Safetylyte" System. Pat. No. 313248. (Supplied under licence.)

**IRITCHETT & GOLD AND E.P.S. CO. LTD.**

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50 GROSVENOR GARDENS, LONDON, S.W.1

TELEPHONE: SLOANE 7164. TELEGRAMS: STORAGE, SOWEST, LONDON. WORKS: DAGENHAM DOCK, ESSEX.

SCOTTISH OFFICE:

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PHONE: CENTRAL 4263.

**P & G AND E.P.S. CELLS**

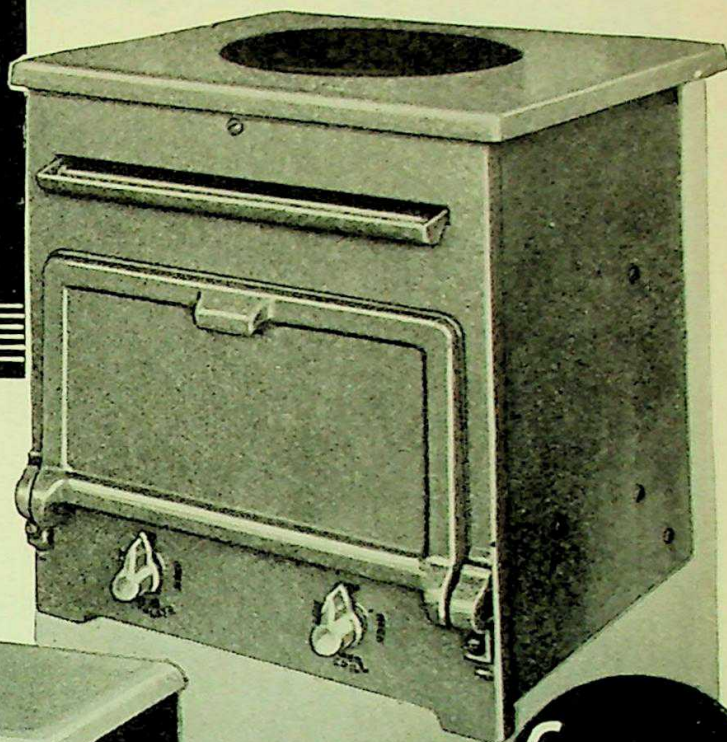


# G.E.C. ELECTRIC COOKING

## MAGNET Table Electric Cooker

Cat. No. D.C. 44 (without door) Price £4-5-0

Cat. No. D.C. 45 (with door) Price £4-12-6

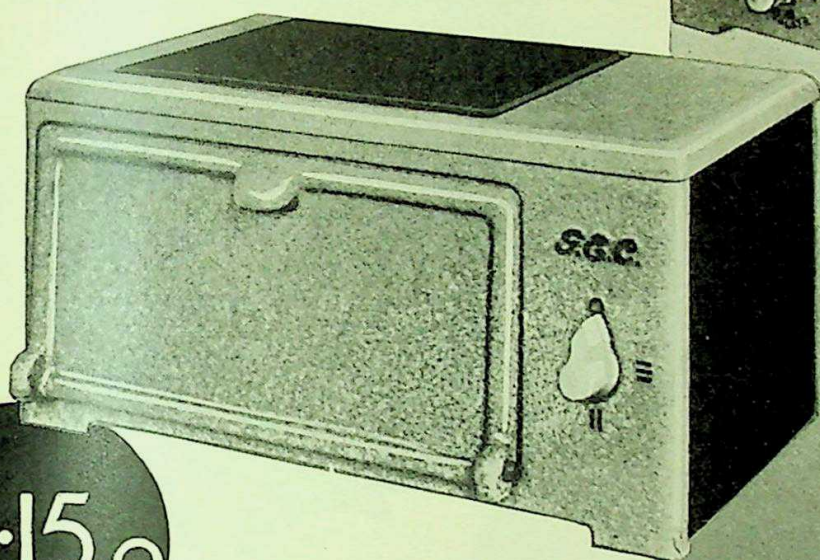


£4.5.0

## MAGNET Electric Grill-Boiler

Cat. No. D.C. 40

Price £2-15-0



£2.15.0

Open up new and  
lucrative avenues for  
profit by selling G.E.C.  
small cooking units

WRITE for particulars of the  
complete range of  
breakfast cookers, grill-boilers,  
cooking plates, etc.

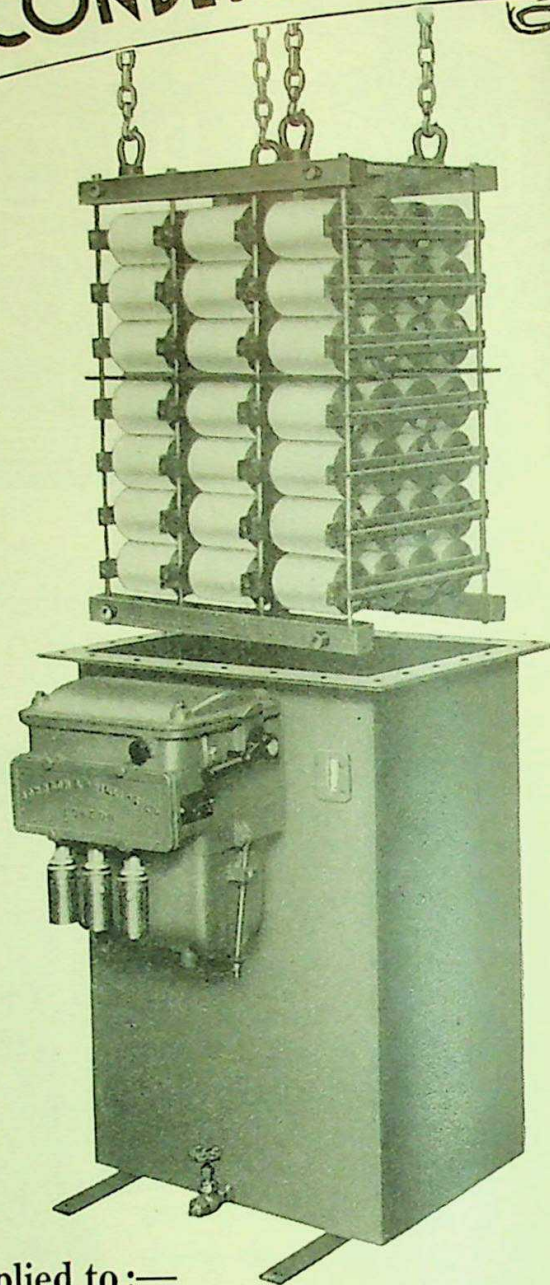
THOUSANDS OF HOMES  
CAN MAKE USE OF  
THESE **NEW**  
BREAKFAST  
COOKERS

MADE IN ENGLAND



# WHO BUYS J. & P. STATIC CONDENSERS ?

Look through the list of Municipalities and Companies who have recently installed J. & P. Static Condensers for power factor improvement and it will prove to you that there are tempting technical and economic advantages to be obtained. J. & P. offer you the opinion of their specialist engineers on your electrical installation. On request, they will come to your Works and carry out power factor tests and they will tell you how you can reduce your overhead electricity costs and improve the efficiency of your plant by installing J. & P. Static Condensers. These units are designed and made to the same generous standard as J. & P. transformers and switchgear — products that have earned the confidence of engineers during the last 60 years.



**J. & P. STATIC CONDENSERS** have been supplied to:—

#### Home :

The Co-operative Wholesale Co., Ltd., Manchester.  
The Gramophone Co., Ltd.  
H. J. Heinz & Co., Ltd. (of the "57 Variety" fame).  
J. & E. Hall Ltd., Dartford (The Thames Ironworks).  
C.A.V.-Bosch Ltd., London.  
United Dairies (London) Ltd.  
McKechnie Bros., Birmingham.

#### Overseas :

Bombay Municipality.  
The Century Spinning and Manufacturing Co., Bombay.  
James Finlay & Co., Ltd., Bombay, and several other large Cotton Mills in India and China.  
Rustenburg Municipality, South Africa.  
Nestle's S.A. Ltd.  
Bay of Plenty E.P.B., New Zealand.  
Hamilton B.C., New Zealand.  
New Zealand Government Railways.

*You are definitely interested in power factor improvement because it saves you money. Why not ask a J. & P. engineer to report on your Works?*

# JOHNSON & PHILLIPS LTD.

Charlton, London, S.E.7.



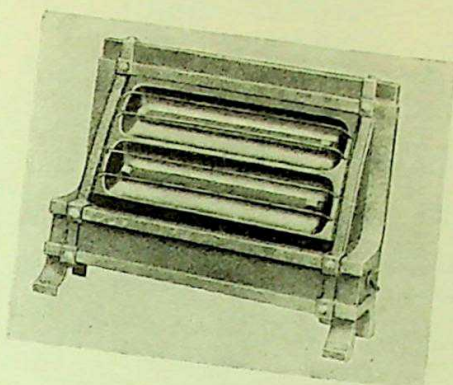


# PREMIER

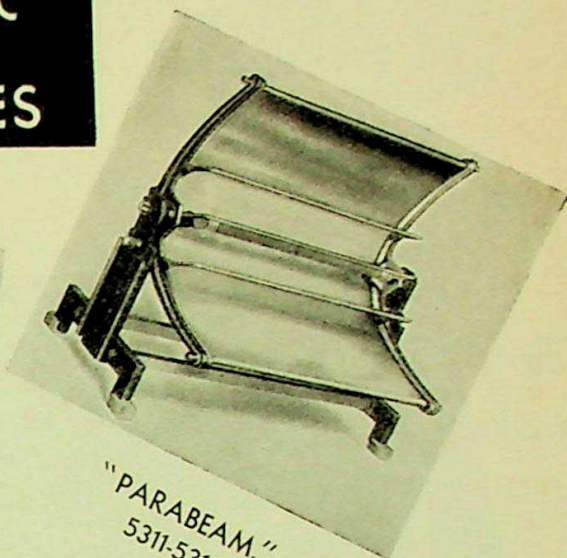
## FINE-QUALITY PARABOLIC REFLECTOR FIRES



"PARALUX."  
5315-5316.



"BREDON."  
5355-5356.



"PARABEAM."  
5311-5312.

Illustrations show—

"Paralux" (5315/6) £4 19 6

"Bredon" (5355/6) £2 15 0

"Parabeam" (5311/2) £1 19 6

This new series of "Premier" Fine-Quality Fires is meeting with the most encouraging reception. The combination of modernity in design, with the accepted superior quality of "Premier" appliances, is proving a very effective sales appeal. It is a pleasant thought for any supplier, to know that he can at one and the same time sell fires which represent the very latest in technical construction, design and finish, and yet are free from annoying maintenance and service costs.



## "PARAGLOW"

An excellent fire for small rooms; fitted latest chromium Parabolic Reflector and "Premier" rod element. Simple arrangement permits alteration of position of reflector. No. 5301, 750 watts in sprayed oxy. silver finish and with 2 yards 3-core flex.

**21/-**

**PREMIER ELECTRIC HEATERS LIMITED, BIRMINGHAM, 9.**

TELEPHONE: BIRMINGHAM VICTORIA 2104 (5 lines).  
TELEGRAMS: FAHRENHEIT, BIRMINGHAM.

London Office: 203 Bush House (Centre Block), Aldwych, W.C.2.  
Telephone: Temple Bar 2903.

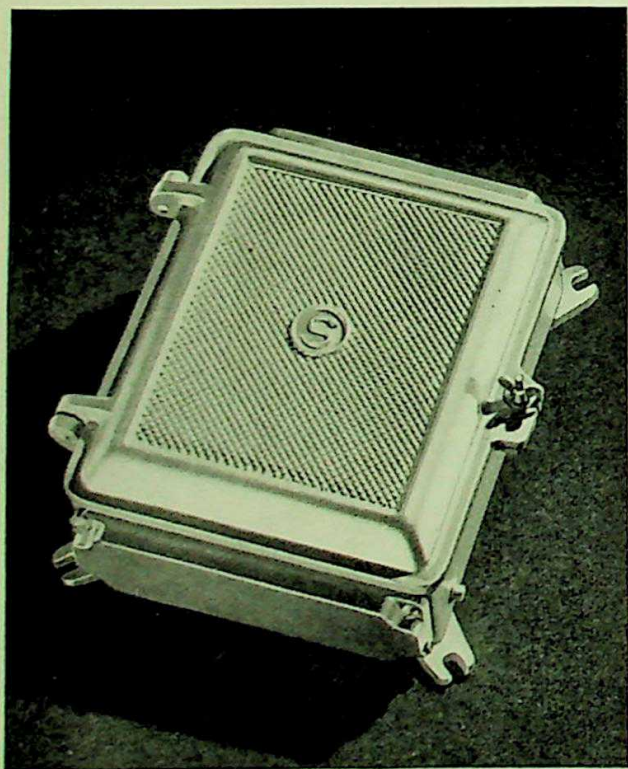


## SOME OUTSTANDING EXAMPLES OF BRITISH ENGINEERING SKILL

*By courtesy of The Great Western Railway Co.*



*Portion of the Great Western Railway track in process of conversion from broad to narrow gauge.*



GREATLY as we may respect the masterpieces of modern British Engineering, it is when we delve into the achievements of a past generation that our admiration is truly roused.

As this is the centenary year of the Great Western Railway it is perhaps natural that our thoughts should turn to that renowned engineer, Isambard Kingdom Brunel, and the passing of his broad-gauge track on May 20th, 1892. The final 171 miles was converted to narrow gauge in two days, nearly 4,000 men being employed in the task—an accomplishment which would be considered remarkable even at the present day. The makers of "Sanders Switchgear" take no small pride in the fact that the familiar trade mark denoting their products is so frequently seen on the majority of British Railways.

**WILLIAM SANDERS & CO. (WEDNESBURY) LTD.**  
**FALCON WORKS · WEDNESBURY · STAFFS.**  
**LONDON OFFICE: 78, NEAL STREET, W.C.2.**

# SANDERS *Switchgear*

FOR SERVICE AND SATISFACTION

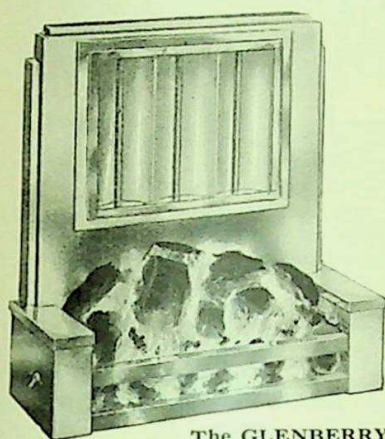


# Magicoal-Plus

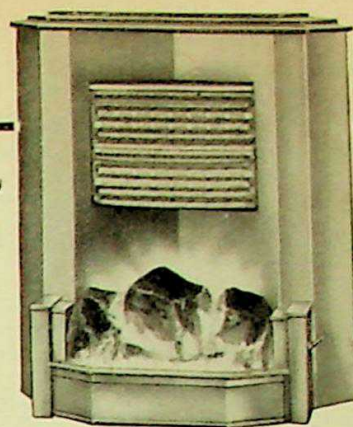
Regd. Designs

H. H. BERRY'S BRITISH AND WORLD PATENTS

To  
SHOW  
them—



The GLENBERRY  
MAGICOAL-PLUS



The VILLABERRY  
MAGICOAL-PLUS

is to  
**SELL** them  
—make a window  
display and see!

You and your customers  
are welcome at our  
magnificent remodelled  
Showrooms.

**BERRY'S ELECTRIC LTD.,**  
LONDON · BIRMINGHAM · MANCHESTER  
NEWCASTLE-ON-TYNE.

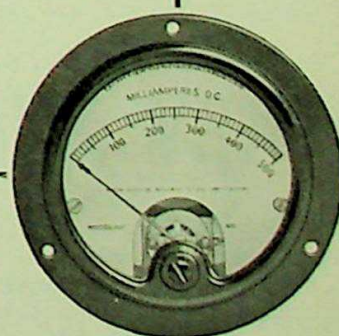
## ELECTRICAL MEASURING INSTRUMENTS



from laboratory standard instruments accurate  
to within one-tenth %.

**WESTON**  
*Standard the World over*  
PIONEERING SINCE 1889

—to miniature panel instruments for D.C., A.C. and  
R.F. Also special instruments for special purposes.



CONSULT THE  
WESTON

FOR  
ALL  
PURPOSES

N ELECTRICAL INSTRUMENT CO. LTD., SURBITON



BRITISH EMPIRE

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# "KEY" FIBRE CONDUIT

MADE IN CANADA  
AND COMPLETED AT OUR  
WORKS IN MANCHESTER  
**FOR UNDERGROUND CABLES**

---

EXTREMELY EASY TO LAY.

NO PROJECTION AT JOINTS.

LONG LENGTHS—FEW JOINTS.

PERFECT ALIGNMENT.

DELIVERY FROM STOCK.

ALL BRITISH EMPIRE.

USED IN THIS COUNTRY  
FOR OVER 30 YEARS.

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## THE KEY ENGINEERING COMPANY, LIMITED

4, Queen Victoria Street,  
Mansion House Buildings,  
LONDON, E.C.4.

Telephone No. 2775 City, London.  
Telegrams—"KEYPOINT, CANNON, LONDON."

Works—  
Trafford Park,  
MANCHESTER, 17.

Elevator Road,  
Trafford Park,  
MANCHESTER, 17.

Telephone No. 1903, Trafford Park, Manchester.  
Telegrams—"KEYPOINT, MANCHESTER."

A.B.C. Code, 5th Edition and Bentley's.



**Russia.**—ELECTRIC POWER OUTPUT.—In 1933, the first year of the Second Five-Year Plan, 16,366,000,000 kWh of electric power was generated in the U.S.S.R. In 1934 the production amounted to 20,500,000,000 kWh; this year an output of 25,000,000,000 kWh is anticipated, states *Reuter's Trade Service* from Moscow.

**South Africa.**—BETHLEHEM DECIDES ON ITS OWN SCHEME.—The ratepayers of Bethlehem, Orange Free State, have rejected



Glossop Road Baths Dance Hall, Sheffield, illuminated by "Osram" lamps. There are 100 sets of decorative lamps as well as a number of coloured types and sixteen 500-W lamps in the special bowl fittings

the proposal to dispose of the town's power station and equipment to the Electricity Supply Commission, and they have authorised the Town Council to proceed with a scheme for extending the plant and for replacing the d.c. system by a.c. The scheme is estimated to cost £43,000.

**AN ADDITIONAL SUPPLY FOR JOHANNESBURG.**—The Johannesburg City Council has decided, by the casting vote of the Mayor, to accept the offer of the Victoria Falls & Transvaal Power Co., Ltd., for an additional supply of electricity, particularly during peak load periods. The strong opposition arose in view of the fact that several members declared that

the proposal was part of a plan to hand over the municipal power enterprise to the V.F.P. Company.

**Southend-on-Sea.**—MILITARY ELECTRICITY SUPPLIES.—The Town Council has entered into an agreement whereby it is to give a bulk supply of electricity to the War Department.

**Spalding.**—MAINS EXTENSIONS.—The mains supply is to be extended to the Land Settlement Association's estate at Low Fulney. A supply is also to be given to Weston, for which a loan of £1,250 is required.

**ELECTRIC COUNCIL HOUSE LIGHTING.**—The Urban District Council has decided that houses on the Winsover Road, Pennygate, estate shall be lighted by electricity.

**Whitby.**—PROPOSED CANVASS.—Following a request for a supply of electricity to the village of Iburndale, the Urban District Council has decided to canvass the area in order to ascertain the demand.

**Wellingborough.**—MARKET LIGHTING.—The Urban District Council has accepted a tender from Wellingborough Electricity Supply Co., Ltd., for lighting the market.

**Wimbledon.**—PROGRESS MAINTAINED.—The chief electrical engineer and manager, Mr. A. E. McKenzie, reports that the Electricity Department has again had a very successful year. The bulk of the electricity sold in the area is utilised for domestic purposes and a very low tariff has been introduced, with the result that 18.3 per cent. of the premises in the Department's area have electric cookers and 18.65 per cent. have water-heaters. A supply is given to 99.4 per cent. of the buildings in the area, and during the year 2,923 new consumers were connected, making the total 33,791. The engineer points out that the undertaking is the largest ratepayer in the district, having paid £18,536 in 1934-35, an increase of 64 per cent. over the previous year.

**Winchester.**—PREFERENTIAL CHARGES DISCONTINUED.—In accordance with a resolution passed by the Council, the Electricity Committee has decided to terminate the granting of preferential charges for energy supplied to the officials and staff of the undertaking.

**Yorks.**—"NO GAS" DECISION.—The City Council has approved a recommendation of the Housing Committee that the Gas Company should not be allowed to install pipes in the houses which are to be erected on the Waters Lane estate, and which are to be provided with electrical installations. It was stated that the Committee had a settled policy on the subject of the installation of electricity and gas in Corporation property.

## Storage Heating in France

**I**N France, especially outside the water-power zones, some electricity supply authorities have feared the effect of the luminous type of electric radiator (except those of small capacities) for general heating on the ground that their utilisation during peak hours made the load of doubtful economic value. A certain number of undertakings, however, have four tariffs, covering peak and other hours for lighting and small accessories, peak hours, off-peak day hours, and night uses.

This situation has encouraged the development of ranges of heaters which operate primarily by air conduction; in France the open fire has never had the same attractions as it has for us, and there is not the same objection to a heating appliance which shows no glow and which can be boxed in. Several makes of heaters for semi-storage and full storage have been developed.

The semi-storage type of heater is employed where the electricity authority offers day energy for heat at a low rate outside the peak hours; this system is useful where the heating is to a material extent discontinuous.

Heaters of the full storage type are in favour where a low price is quoted for night service. The principle adopted in both cases is to heat up cast-iron blocks or other heat-absorbing substances by means of resistance grids packed in sandwich form in a heat-insulated box-shaped casing with a metal framework, the sides being filled in with decorated

asbestos cement sheets or other analogous material. Air ducts from below lead to louvres.

When the heater is being charged the air outlet at the top is closed and the heat is kept in by the bell effect and the insulated walls. When charged, the heat is let out as required by means of air circulation through the ducts and regulating shutter. One make has a thermostatic shutter regulator, which keeps the temperature of the room reasonably constant. Switching is usually performed by a time clock, but a high-frequency system for the operation of special relays is being developed in some areas.

When storage heaters were first made, trouble was often experienced due to failure of the element at temperatures which the best alloys will withstand nowadays. Further troubles arose owing to breakage of the heater conductor following expansion and contraction as a result of the methods used for building up the elements.

Improvements in the internal design of such heaters include a series-parallel arrangement of the elements, special conductor forms and insulation, more suitable air ducting, and better heat insulation for the walls. Some of the latest heaters with a hammered-iron decorated framework have a good appearance. These storage heaters are having some vogue not merely for domestic uses, but also for offices and schools as they do not scorch the air.

Box-shaped heaters covered with "Everite" asbestos sheets coloured and polished to look like marble are extremely neat. In order to store enough heat the larger sizes are heavy, but they are usually placed along a wall or in front of a fireplace.

In France there are bakers' and confectioners' electric ovens that work to a greater or lesser extent with stored heat; in some of them ordinary sand is used as the storage element. For baking, fuel oil has a vogue, but some authorities have recently stated that its use can be deleterious to the bread. As the weight to be baked in proportion to the cost is greater, heat storage for bread baking is more attractive than for confectionery, although the hours of baking in some cases fit in with those of supplies of electricity at a low tariff. In the South hot-water storage is being adopted for a certain number of office buildings.



An attractive 4-kW storage heater



# Electricity Supply

## Lighting, Domestic, Power

**Algeria.**—RURAL SUPPLIES.—Contracts have just been placed for the supply and installation of twenty-two transformer boxes and thirty-three transformers required in connection with the extension of the electric power supply facilities in the rural areas of the Constantine district.

**Ashton-under-Lyne.**—TEN THOUSAND CONSUMERS.—At a radio and domestic electrical appliances exhibition held recently an electric iron and a kettle were presented to the Electricity Department's ten-thousandth consumer.

**Boston.**—RECENT DEVELOPMENTS.—The Town Council has accepted a tender for the lighting of several main thoroughfares with mercury electric-discharge lamps. This follows an experimental installation with seven lamps, the new scheme involving an additional 101 standards. The Boston & District Electric Supply Co., Ltd., has recently standardised tariffs for the whole of its area of 270 square miles, and has reduced the two-part tariff running charge to 3d. per kWh. The water heating rate is now 3d. per kWh, and apparatus is supplied on simple hire. The company has received the consent of the Electricity Commissioners to a reduction in the voltage in Boston and certain contiguous parishes from 240 to 230 V.

**Brazil.**—HYDRO-ELECTRIC SCHEME.—A small hydro-electric station has recently been completed on the River Taquarassu at Bello-Horizonte, in the State of Minas Geraes, in connection with the mines of the Companhia Siderurgica Belgo-Mineira. The plant comprises three 1,450-h.p. Francis-type, vertical-shaft turbines constructed by the Officine Riva, of Milan, coupled direct to A.E.G. alternators generating 2,200-V power at 600 r.p.m. under a head of about 108 ft.

**Darlington.**—A NEW FEEDER.—Application is to be made to the Electricity Commissioners for sanction to borrow £1,090 to cover the cost of laying a feeder from the generating station to the showrooms sub-station.

**SUB-STATIONS.**—The Town Council is to erect a sub-station in Haughton Road, and proposes to acquire a site in Elton Road for another sub-station.

**Eyemouth.**—STREET LIGHTING.—The Town Council is to have the gas street lighting replaced by electric lamps.

**Farnborough.**—CHEAPER ELECTRICITY AT COVE.—The Mid-Southern Utility Co. has informed the Urban District Council that, commencing with the meter readings for the Christmas quarter, consumers at Cove will be entitled to the charges ruling in the town, in place of the existing higher rates.

**Glasgow.**—ELECTRIC COOKING IN A HOSPITAL.—The Health Committee has agreed to the use of electricity for cooking at Cowglen Hospital, and the city engineer is to report on the approximate consumption of energy for laundry purposes.

**Glendale (Northumberland).**—EXTENSIONS.—The Rural District Council is to ask the North-Eastern Electric Supply Co., Ltd., to provide electricity to the outer parts of Glendale.

**Glenluce (Wigtownshire).**—PUBLIC LIGHTING.—The village is to have electric street lighting to take the place of oil lamps.

**Great Yarmouth.**—ELECTRICAL DEVELOPMENT.—At a recent meeting of the Electricity Committee the borough electrical engineer reported that, in consequence of electrical development, a loan of £43,000 would be required to meet expenditure, as follows:—mains and services (£20,000); assisted wiring (£3,000); domestic appliances (£15,000); and sub-station equipment (£5,000). The Committee approved the recommendations.

**AN AMENDED AGREEMENT.**—The electrical engineer recently reported to the Electricity Committee that the East Anglian Electric Supply Co., Ltd., proposed to extend its mains in the East Suffolk area from its grid connection at Stowmarket and was desirous of transferring the bulk supply now taken from the Corporation mains at Beccles to the proposed new mains. He recommended that as the increased demand from villages in the Corporation's area of supply and abutting on the route from Yarmouth to Beccles would gradually absorb the load released by the East Anglian Co., the agreement with the company should be amended as suggested. The Committee decided to negotiate with the company on the subject.

**Hove.**—SUPPLY TO FLATS.—The Town Council is to extend the a.c. mains from Hove Street sub-station to supply a block of flats at Viceroy Lodge, at an estimated cost of £1,757.

**Jarrow-on-Tyne.**—CANVASS.—The Town Council is canvassing Monkton to ascertain the demand for electricity, following a request from the Parish Council that supplies should be made available.

**Keith.**—STREETS TO BE LIGHTED ELECTRICALLY.—A scheme for lighting the streets of the burgh by electricity has been approved by the Town Council.

**Lanarkshire.**—GAS COMMITTEE TO CONSIDER ELECTRICITY RECOMMENDATIONS.—The County Council has approved a recommendation of the Gas Committee to the effect that when the question of installing electricity in place of gas in the Council's houses next arises the matter shall, in the first instance, be remitted to the Gas Committee for consideration and report. Previously the Gas Investigations Sub-Committee had considered a statement of the clerk regarding the loss which the gas undertaking had sustained through electricity being in-

stalled in houses on the Viewpark Estate in place of gas, the clerk pointing out that if the change-over was extended to other estates the undertaking would lose about £9,000 per annum.

**Lancashire.**—COUNCIL OPPOSES COMPANY'S PLANS.—Objection has been raised by the West Lancashire Rural District Council to the Lancashire Electric Power Company's proposal to use overhead lines in certain roads in providing a supply of electricity at Banks.

**Lincolnshire.**—FURTHER RURAL DEVELOPMENT.—Last week we gave details of a number of rural extensions in the neighbourhood of Boston. A further large electrification scheme of this nature is to be carried out in the Market Rasen and Brigg districts during the coming year by the North Lincolnshire & Howdenshire Electricity Co., Ltd., which is also preparing preliminary plans for supplying North and South Kelsey, Holton-le-Moor and Osgodby. Good progress is being made at Atterby, Snitterby, Waddingham and Bishop Norton, and Tealby will be included next year. Wayleave difficulties are hampering work at Middle Rasen, Nettleton and Waddingham. The company intends to erect a line from Barnetby to Caistor, and is also considering the provision of a supply to Bigby, Somerby, Searby and Grasby.

**Liverpool.**—RECOVERING PAYMENT.—Powers are being sought by the Corporation in respect of the recovery of sums due for electricity and fittings. One clause provides that the placing in a coin box of anything other than the appropriate current coin, shall be deemed, in its application to the electricity undertaking, to be fraudulent. No proceedings will be taken if, within seven days after demand, payment is made to the Corporation. It is proposed to extend the powers conferred on the Corporation by Section 24 of the Electric Lighting Act of 1922 regarding entry into premises. If a person refuses to admit an officer to premises which he is entitled to enter, the Corporation will have the right to prosecute.

**London.**—LEWISHAM.—A recommendation of the Works Committee that Canadian Avenue should be lighted by 250-W "Osira" electric-discharge lamps was debated for more than an hour at a recent meeting of the Borough Council. The tender was £7 11s. per standard per annum, as compared with £10 6s. in the case of centrally suspended gas lighting, and the chairman of the Committee stated that it had chosen what it considered to be the better lighting. A protagonist of the claims of gas, however, declaring somewhat cryptically that "the same old gang" was at work, contended that the gas company had not been asked to tender for lighting comparable with the electrical system. He moved that the recommendation should be referred back. Twenty members voted in favour of this course and the same number against, the Mayor giving his casting vote in favour of reference back. In view of this decision, the chairman of the Works Committee intimated that he would take back a further recommendation for "Osira" lighting in Springfield Crescent.

**BATTERSEA.**—The Borough Council is applying for sanction to an expenditure of £7,038 on machinery and plant. Electricity services are to be provided to 163 premises at an estimated cost of £1,261, and a new cable is to be laid in place of the existing vulcanised bitumen distributor in Queen's Circus.

**Okehampton.**—SUPPLY TO NORTHLEW.—The West Devon Electric Light Co., Ltd., has informed the Rural District Council of its intention to give a supply of electricity to Northlew.

**Palestine.**—MODERN LIGHTING AT BETHLEHEM.—The Jerusalem Electric and Public Service Corporation supplies Bethlehem and a number of the neighbouring villages with electricity, which is used for public lighting. Care has been taken that the standards should be in keeping with the surroundings. The accompanying photograph shows an artistic lighting column outside the Church of the Nativity, the star at the top being illuminated when the lamps are switched on.

**Port Talbot.**—DISTRIBUTION EXTENSIONS.—Negotiations for a bulk supply of electricity to Port Talbot are nearing completion, and the Council has under consideration the extension of the system throughout the district with tariffs that will compare favourably with any part of the country. This year the lighting flat rate has been reduced from 8d. to 5d. per kWh.



An electric lighting standard at Bethlehem



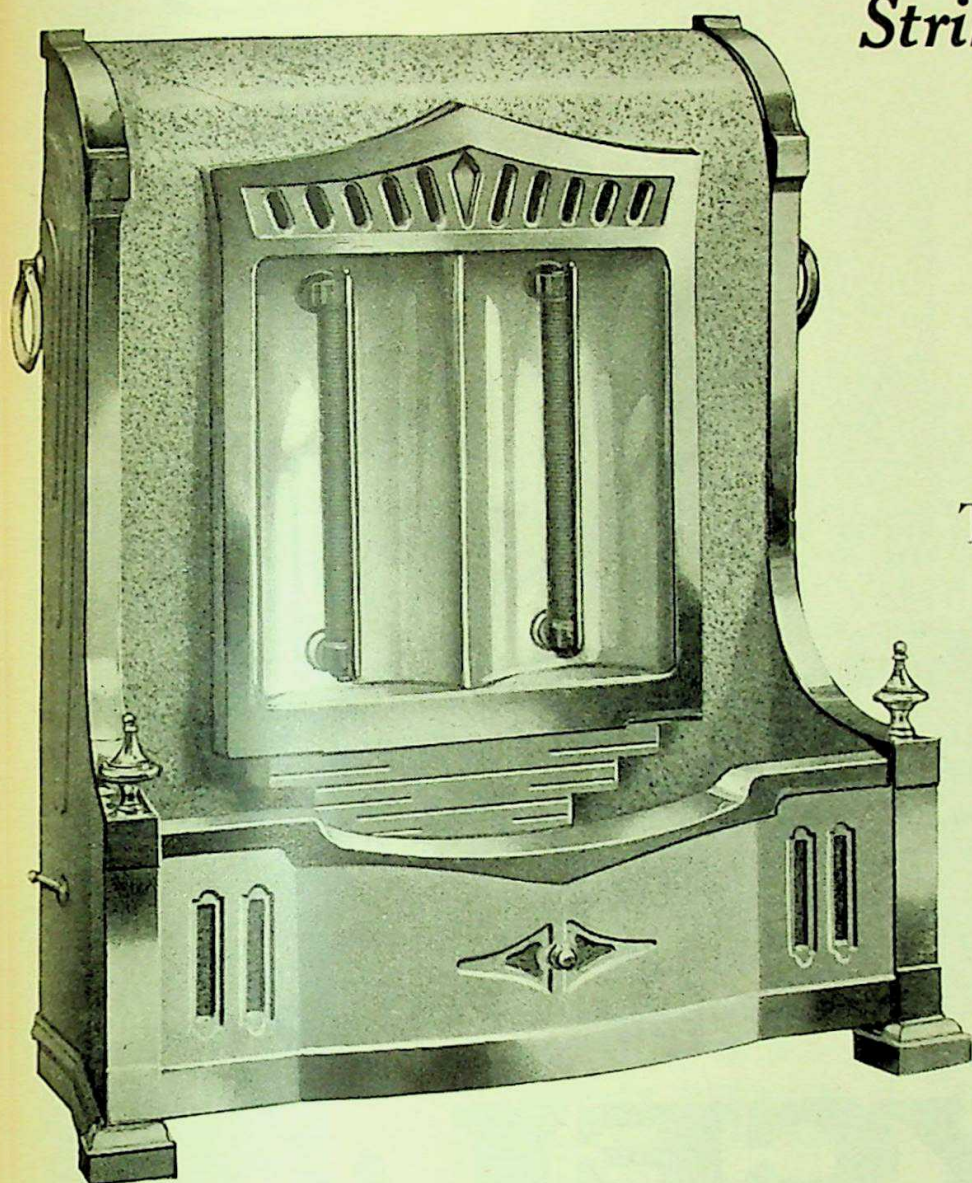


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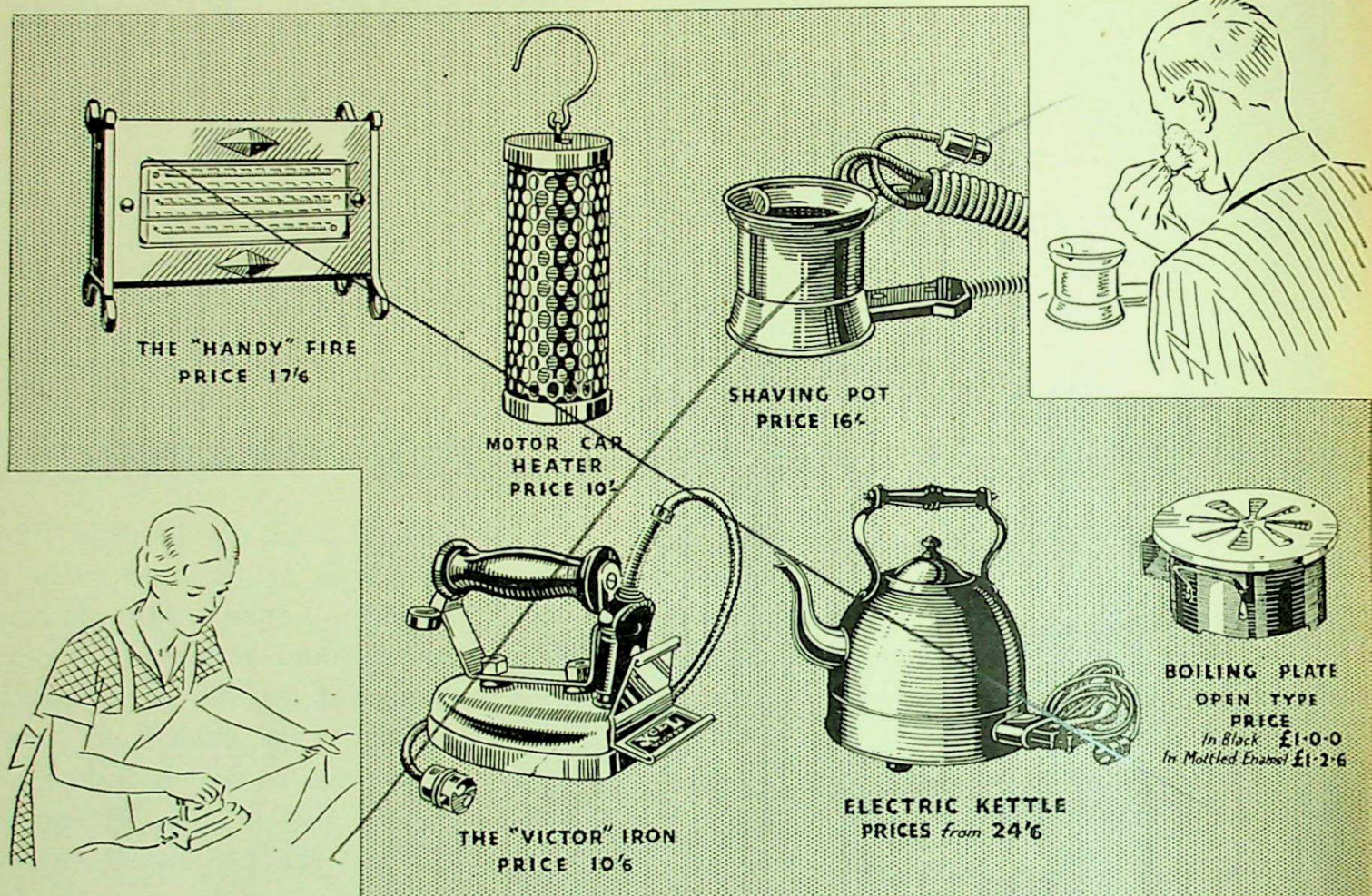


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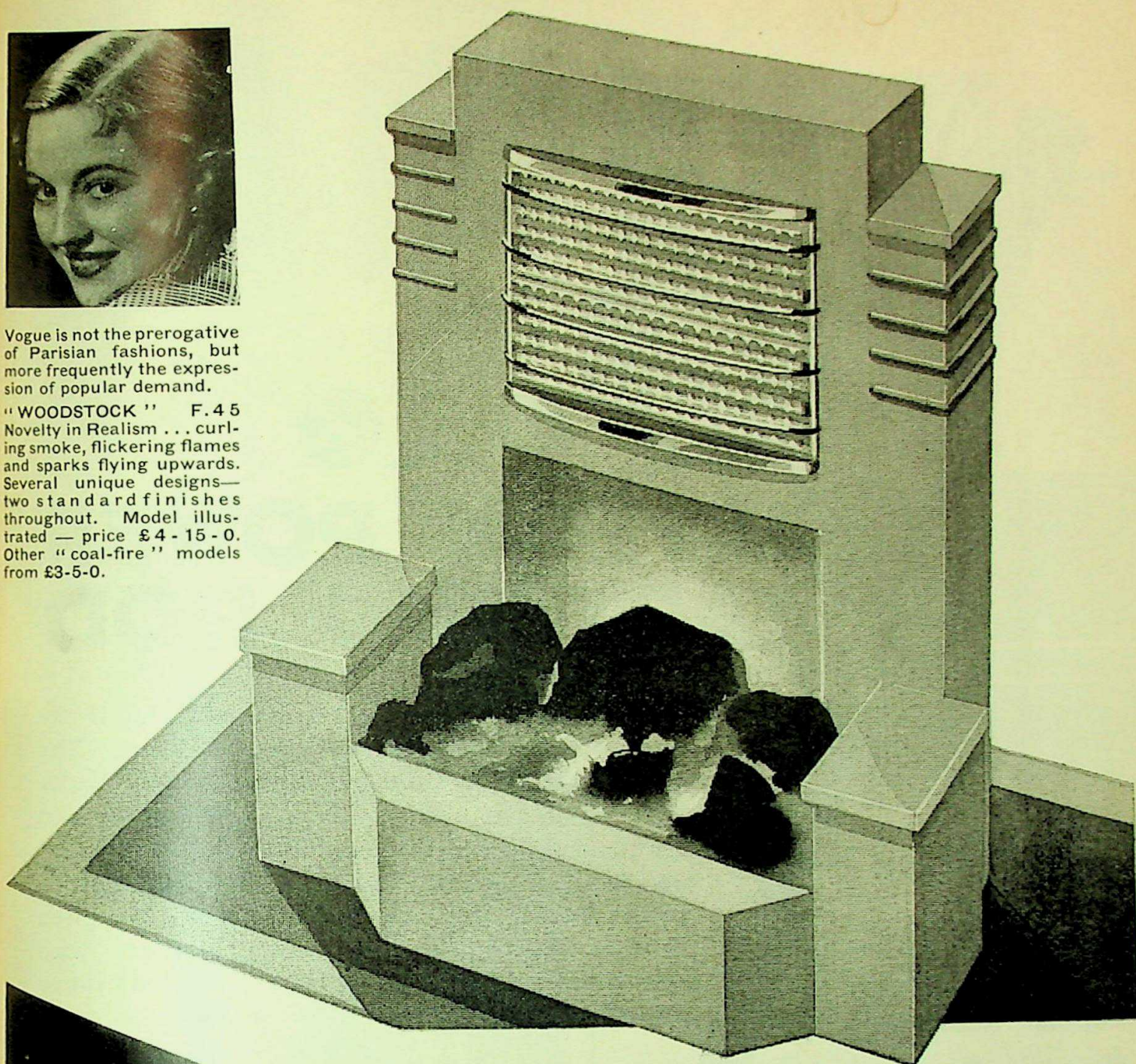
Agents of SIEMENS ELECTRIC LAMPS AND SUPPLIES LIMITED, 38/39, Upper Thames Street, London, E.C.4.  
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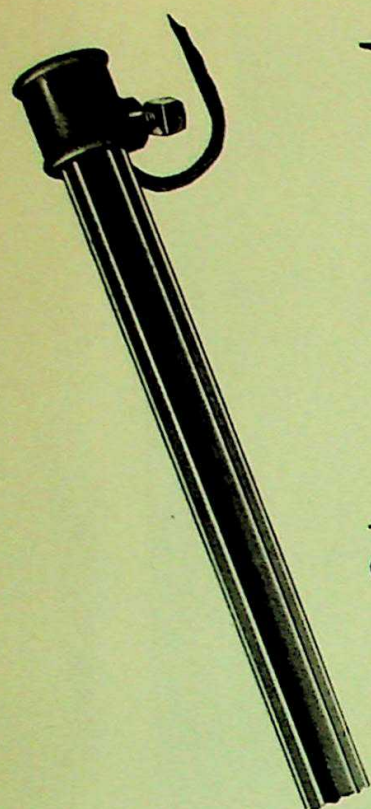
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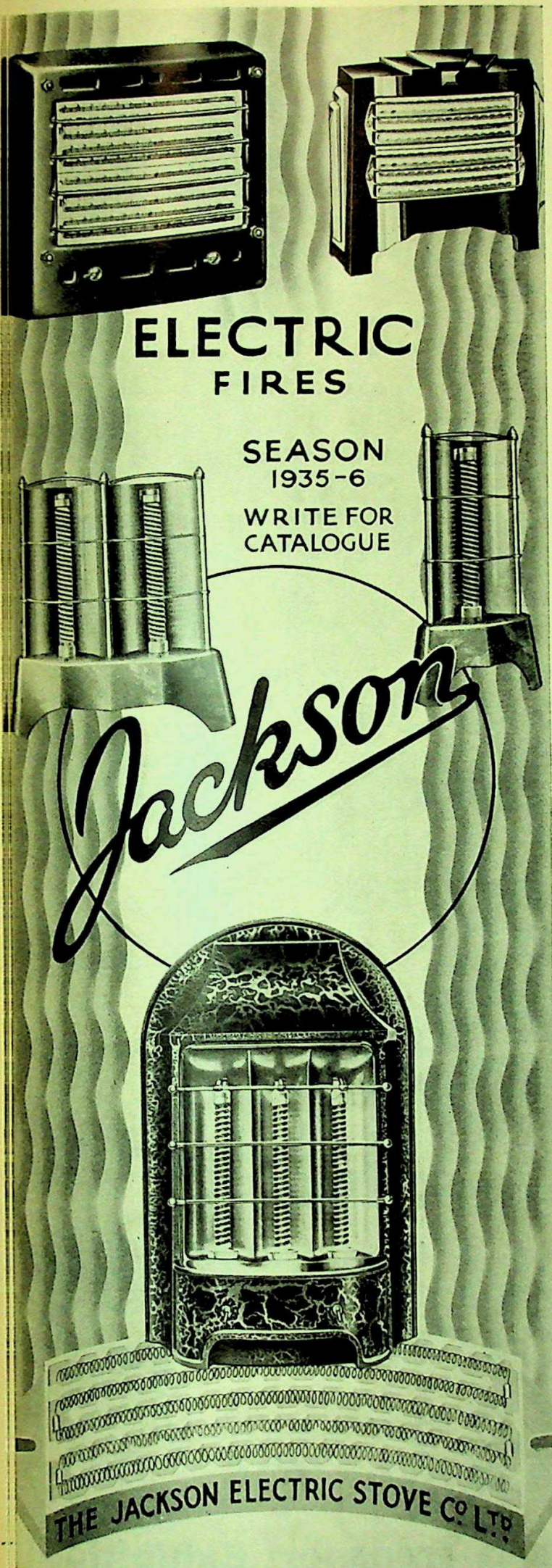
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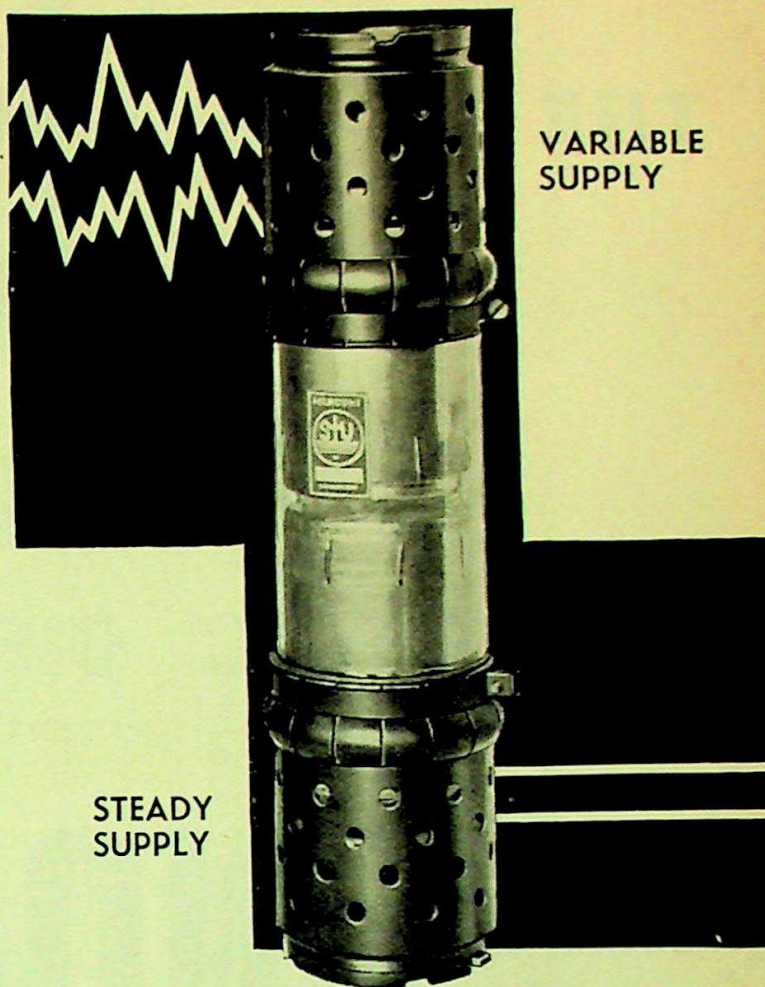
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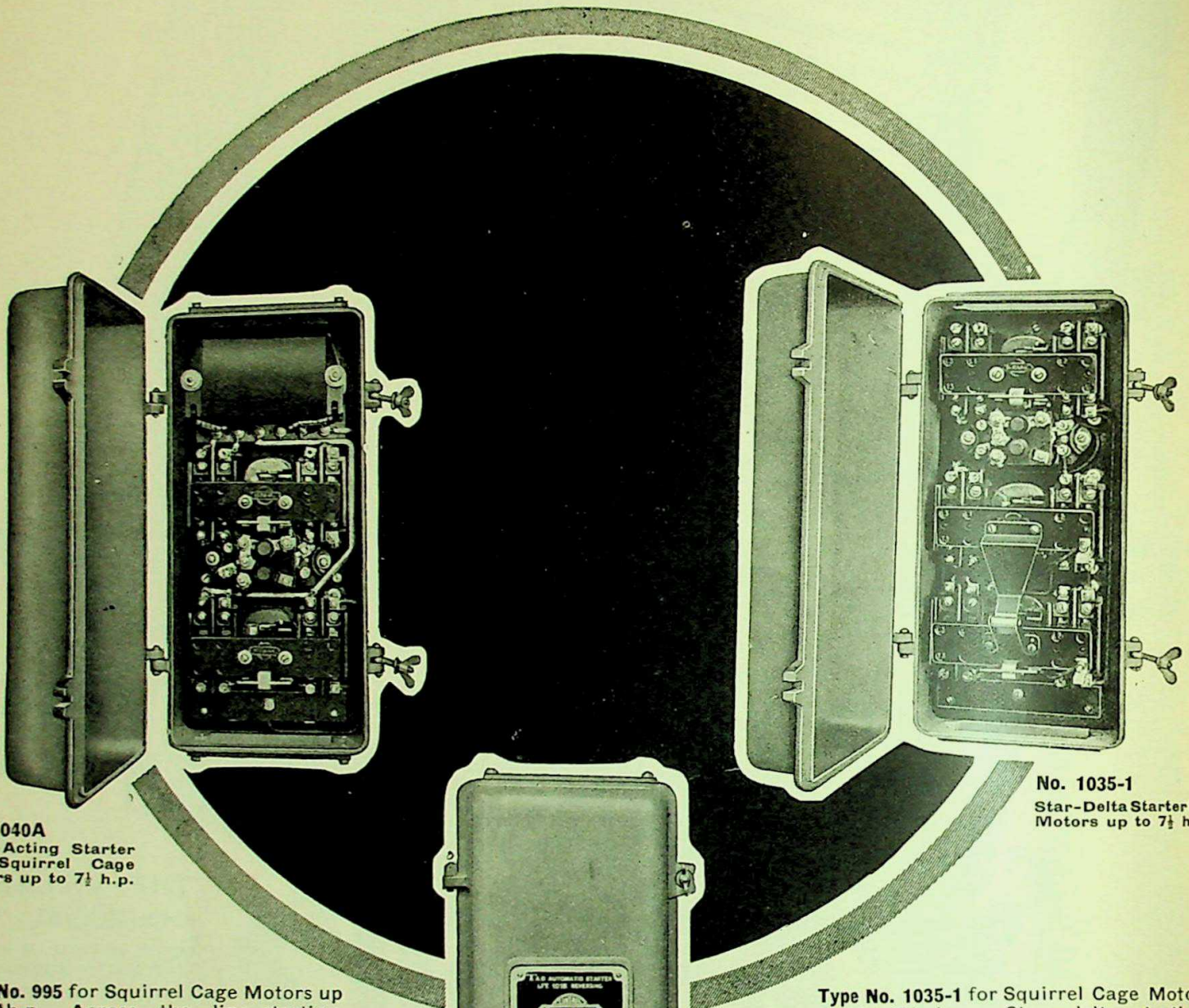
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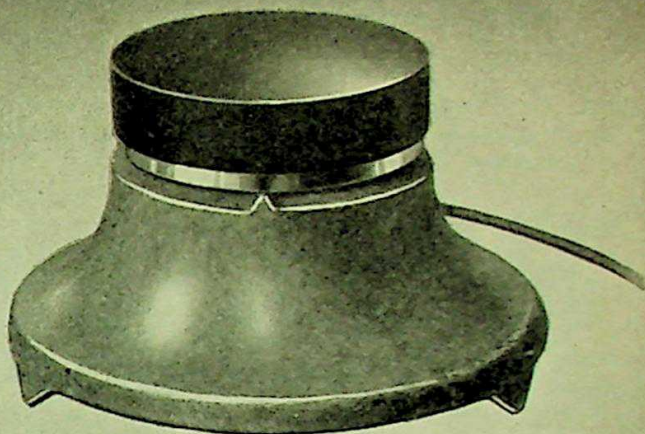
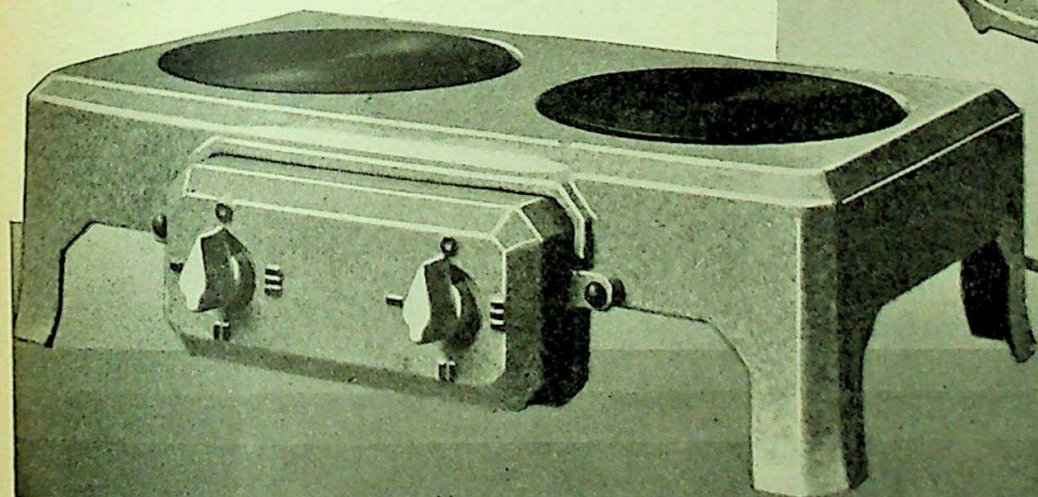
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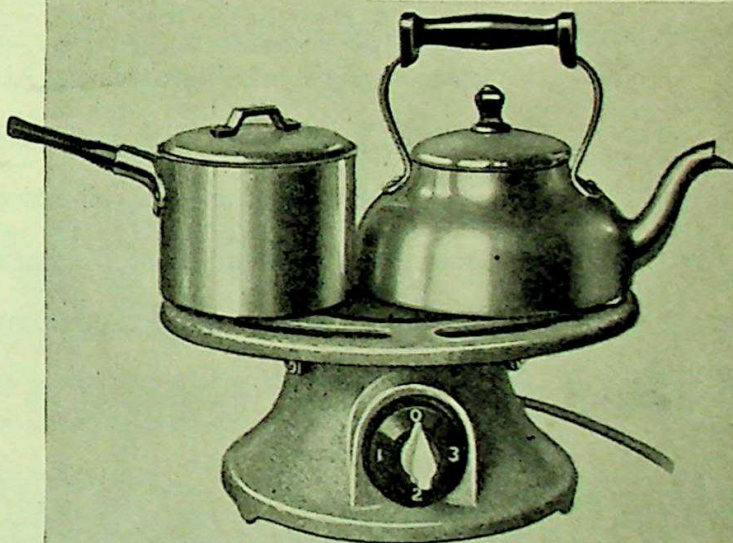
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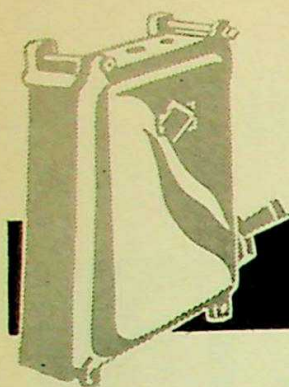
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D.C. 21. MAGNET Boiling Plate with hob. Diameter of plate 8 in. 3-heat control. Loading 1,800 watts. List Price 52/6

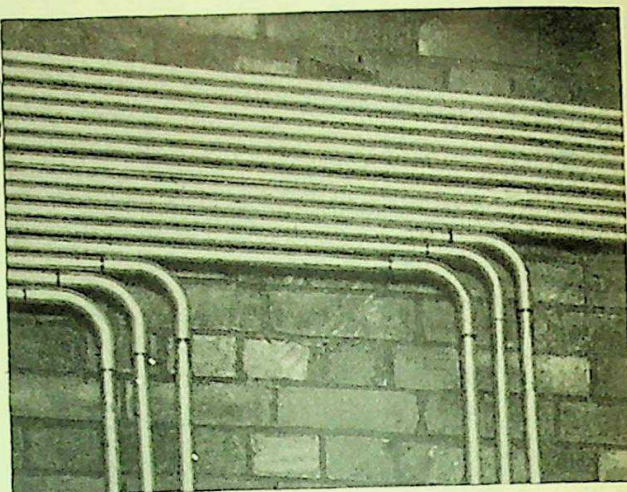
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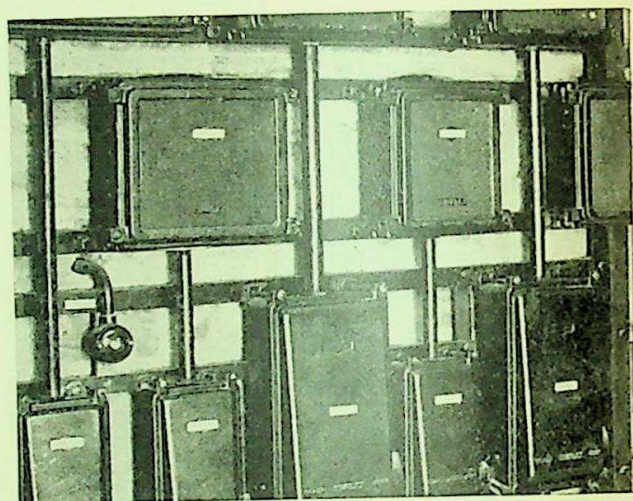


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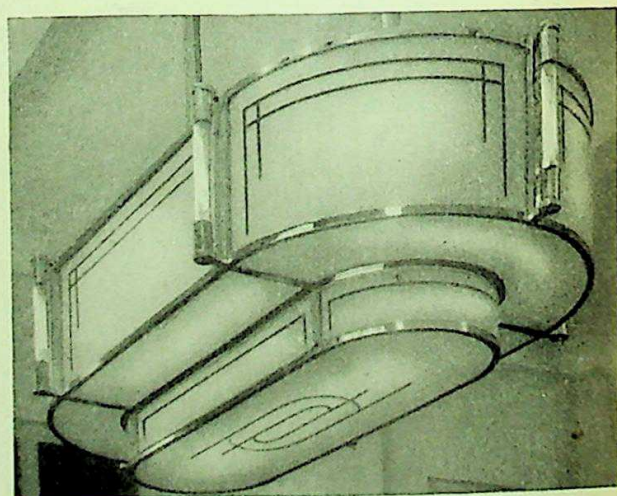
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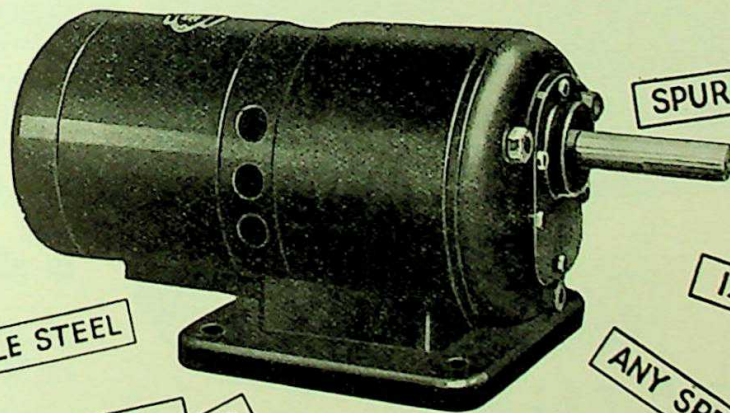
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GEARING HIGH TENSILE STEEL

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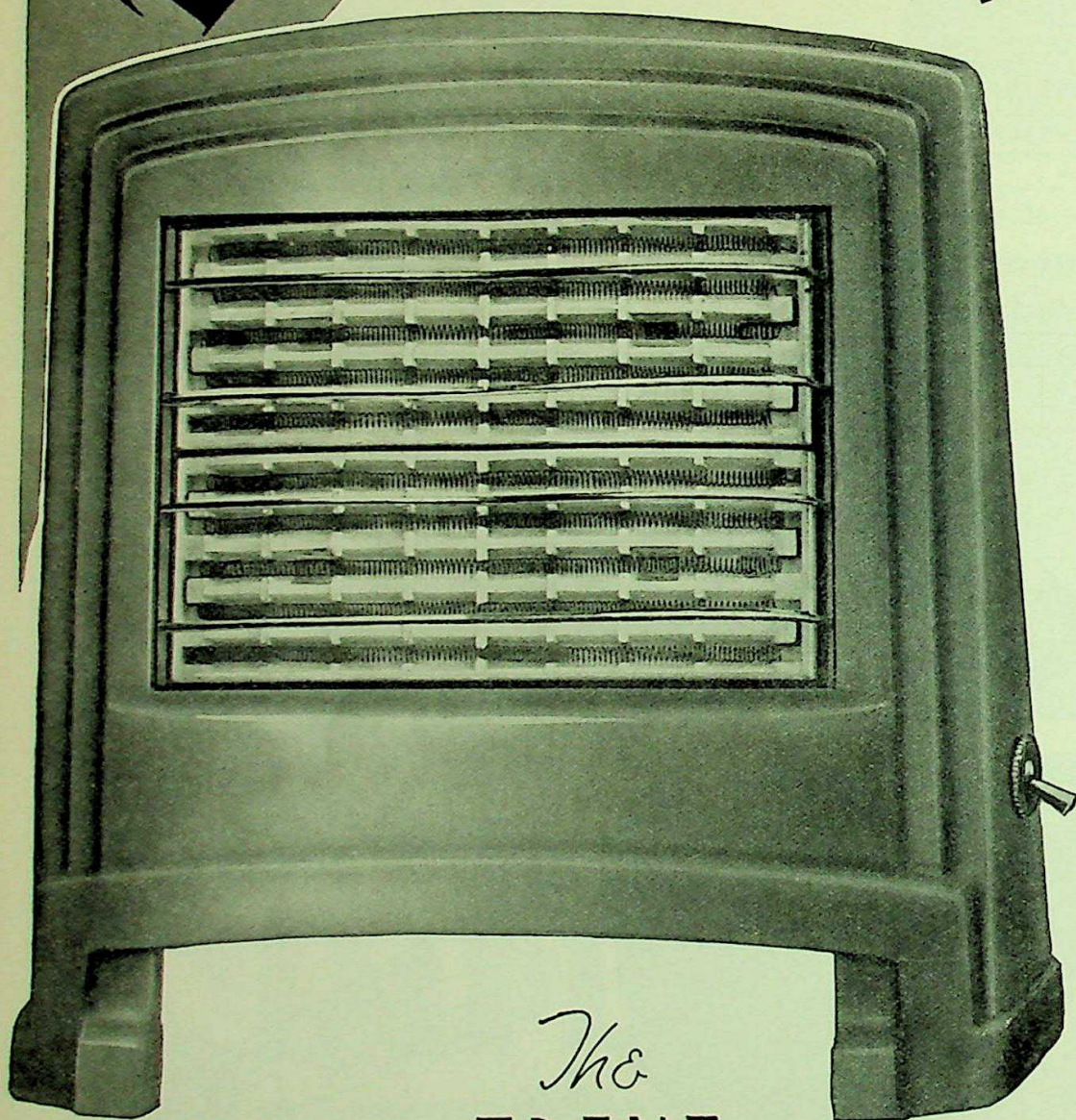
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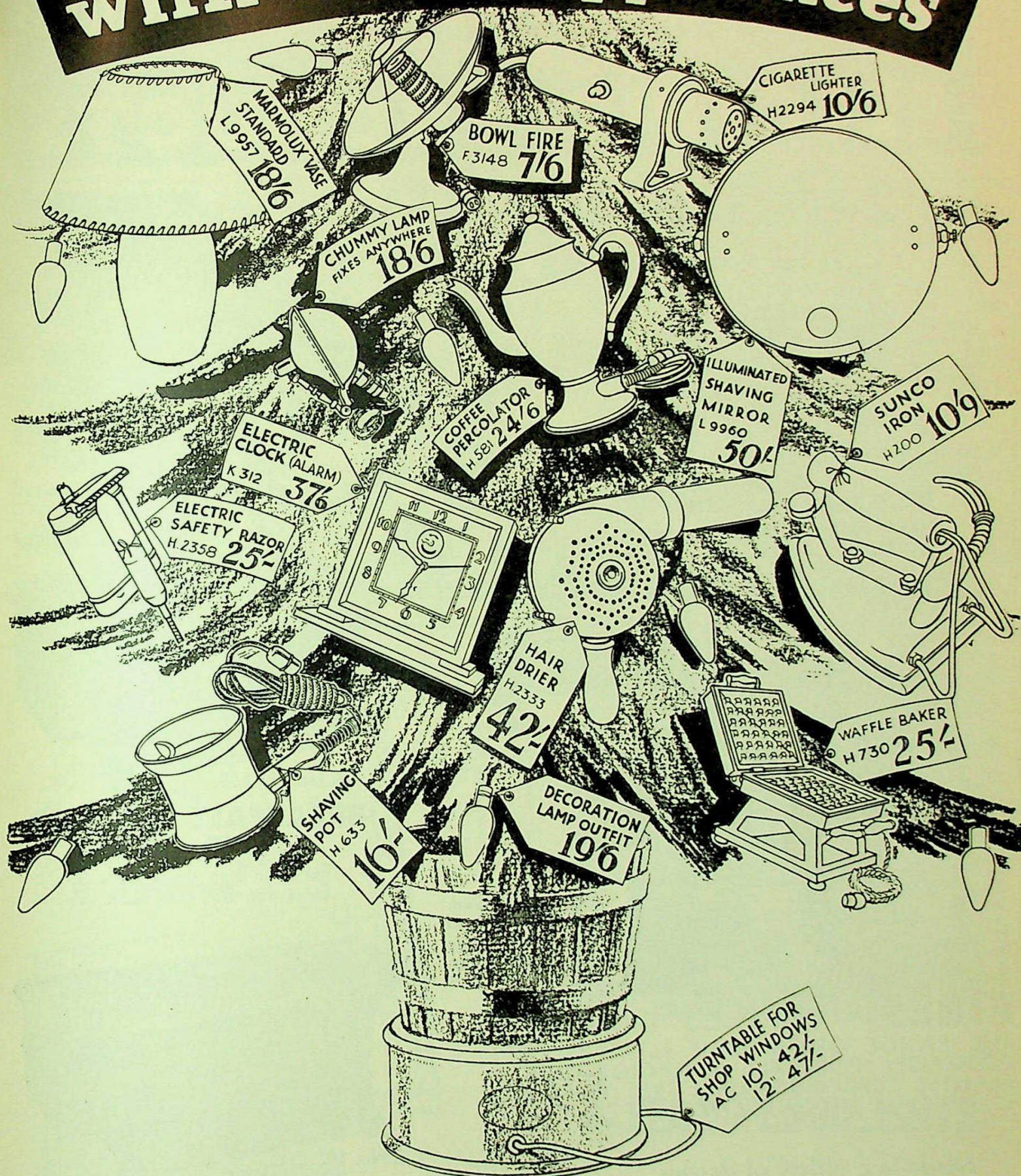
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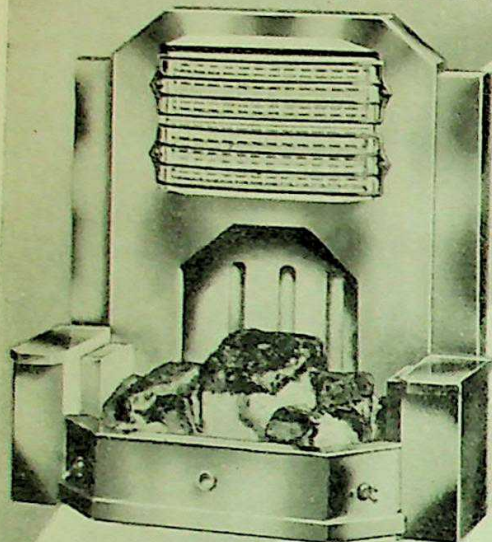
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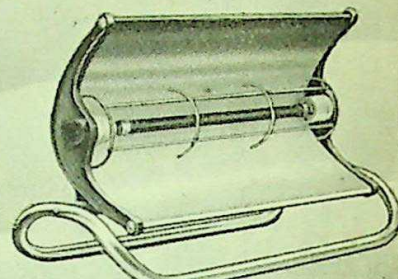
### EXAMPLES FROM THE RANGE



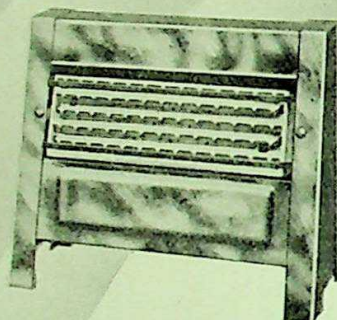
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Cat. No. HH150. 2 kw.  
Finished either in  
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bronze.



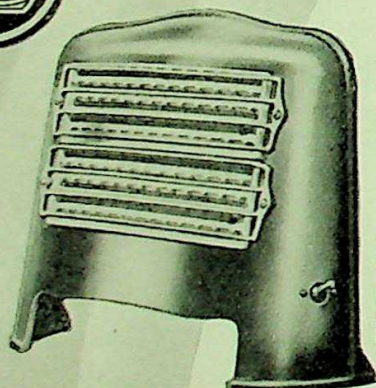
Cat. No. HH114. 1 kw.  
Chromium-plated  
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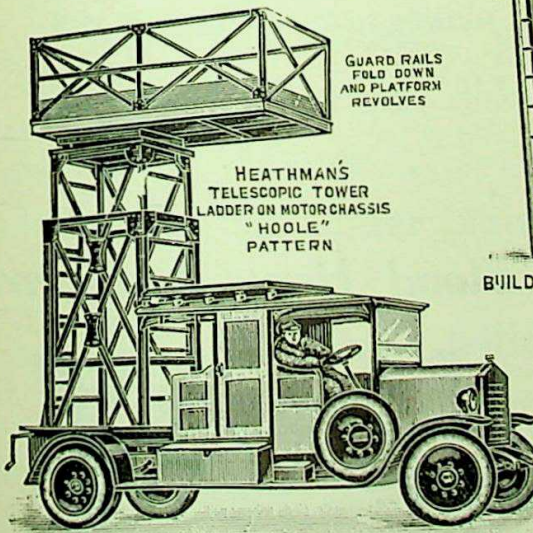
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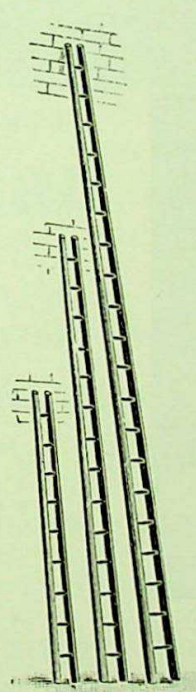
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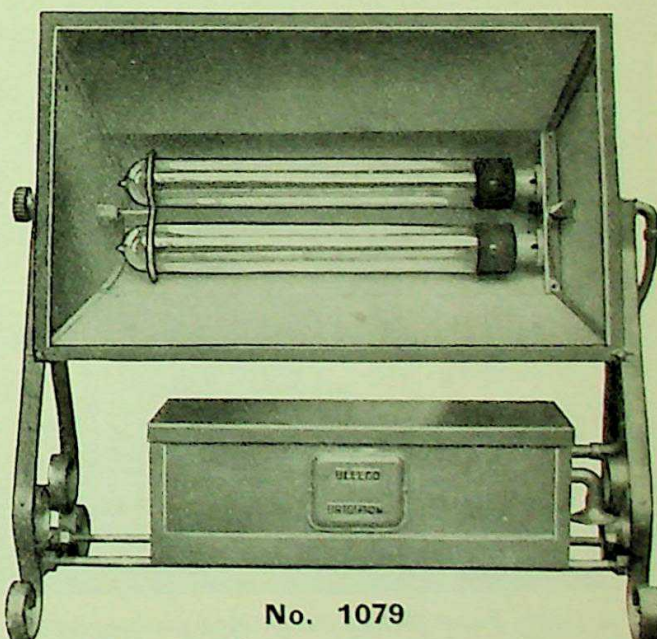


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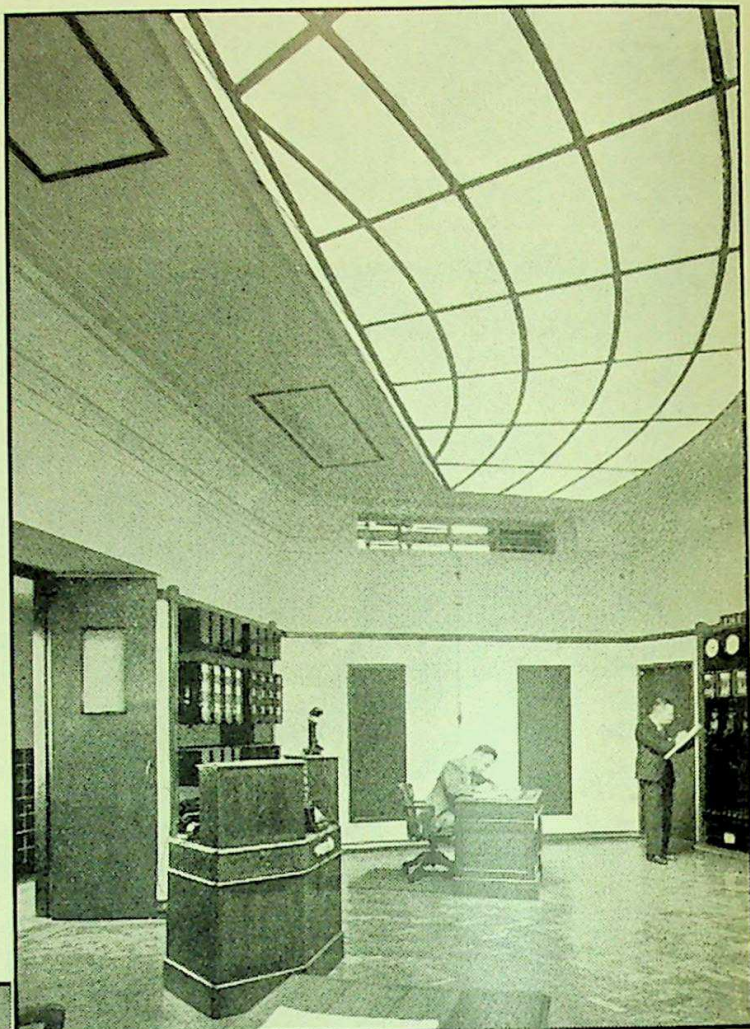
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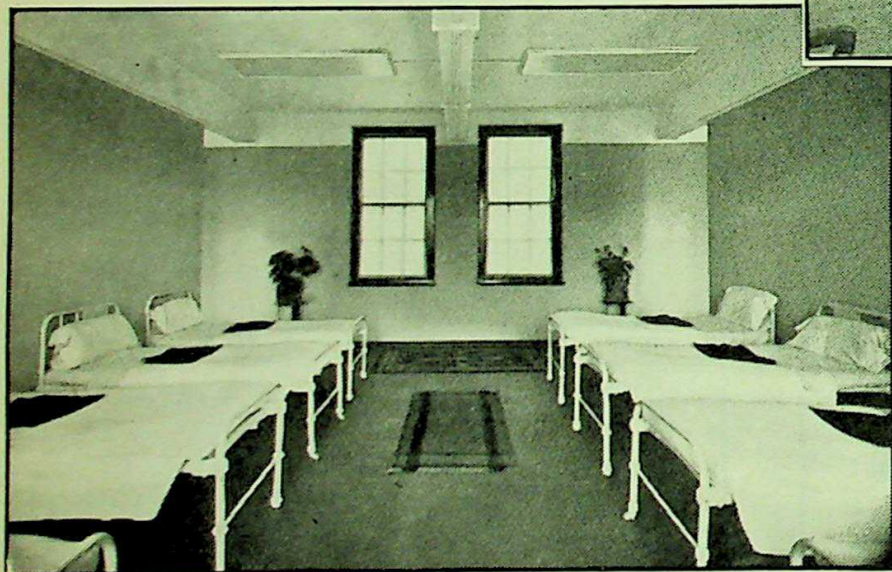
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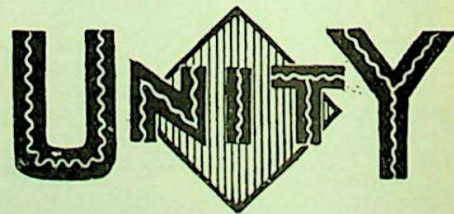
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**"See that man there, Mr. Russell!**

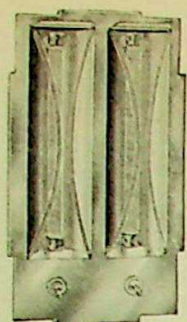
. . . he's one of your 'Section Leaders'★. . . made me a present of £25 last week . . . . . brought me in a bunch of users' orders from this district . . . I never did a penny's business with any of them before . . . Now I'm in on lamps, there's a lot of other things I can sell them, too."

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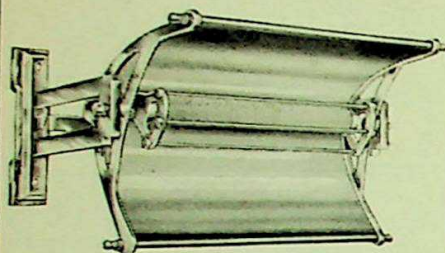


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Cast Front

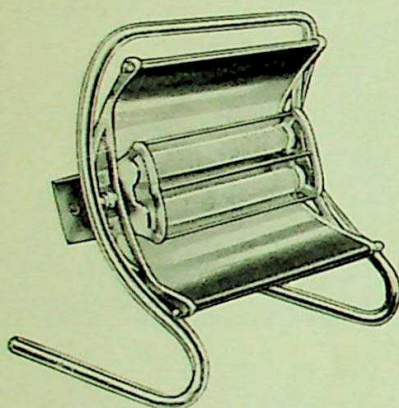
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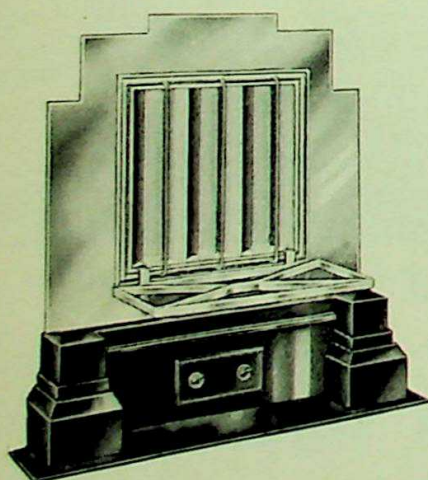
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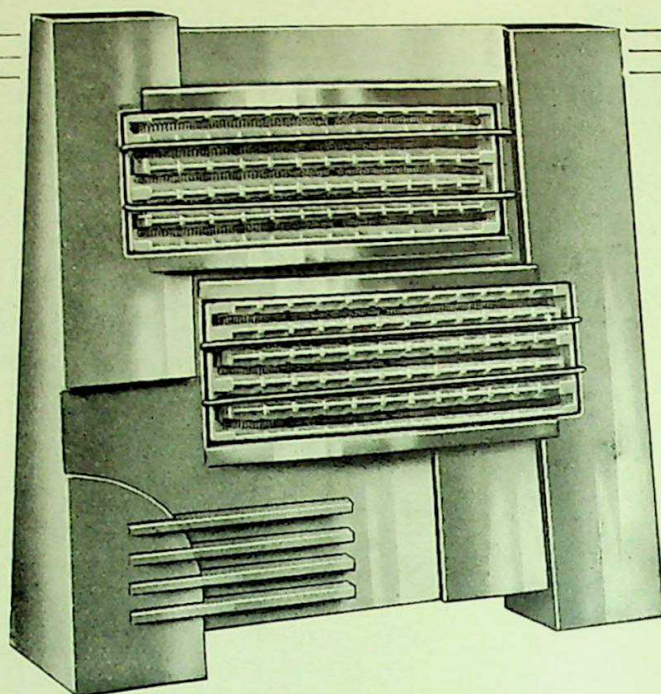
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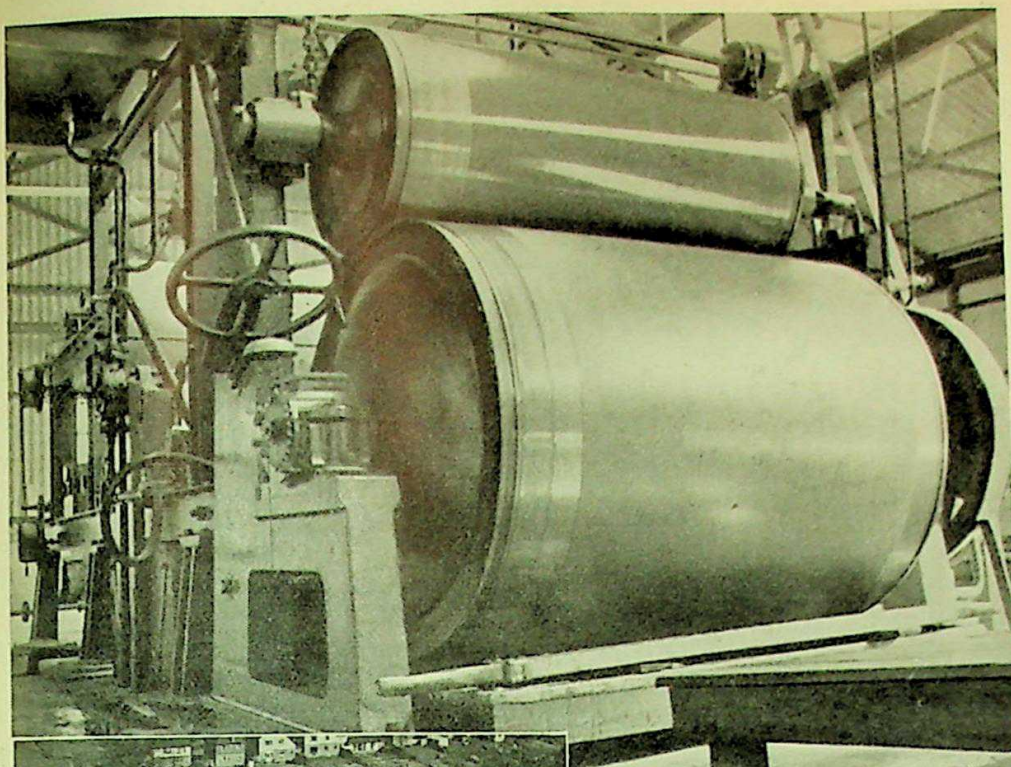
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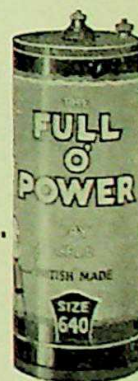
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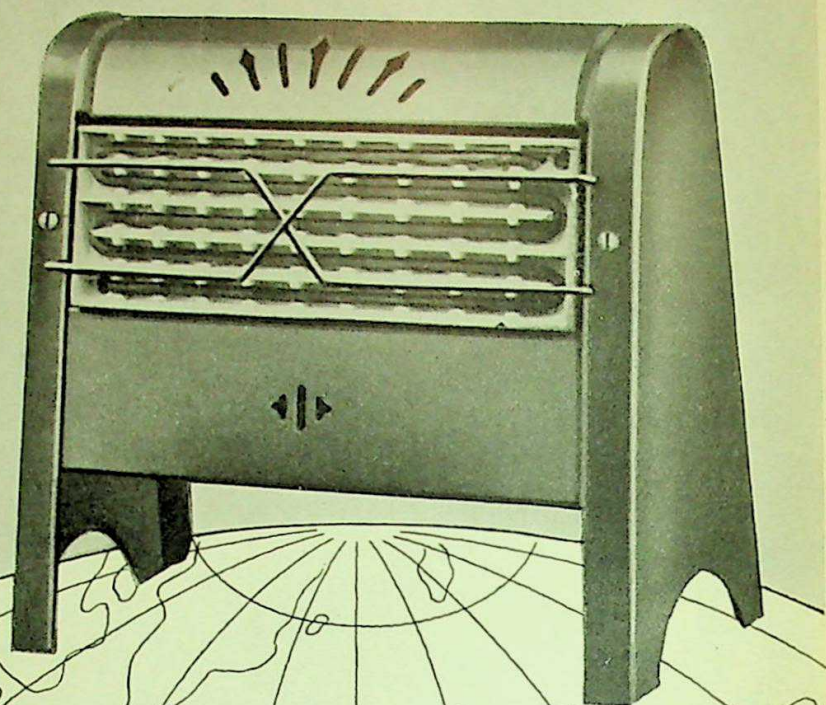
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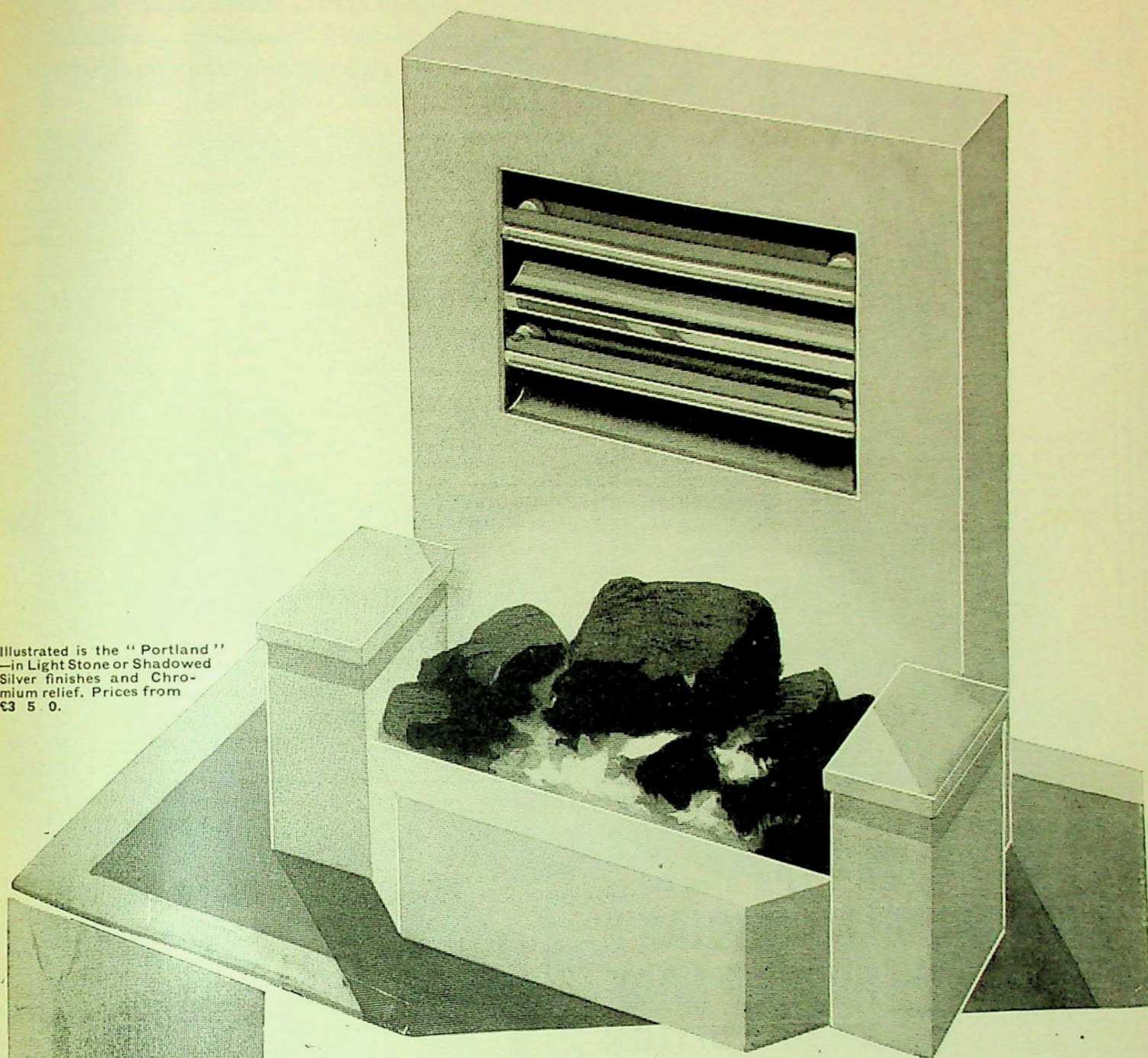
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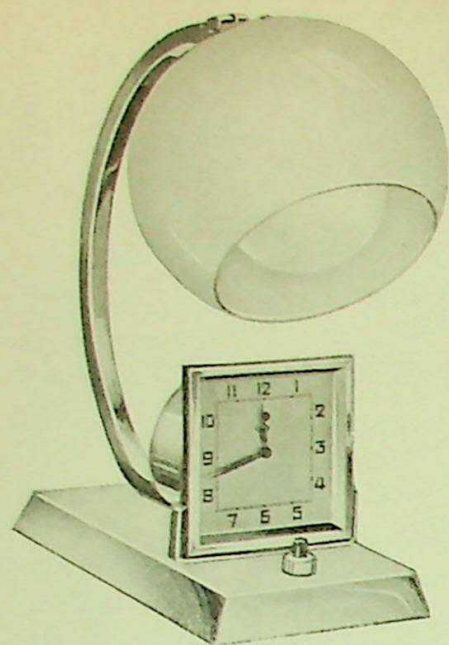
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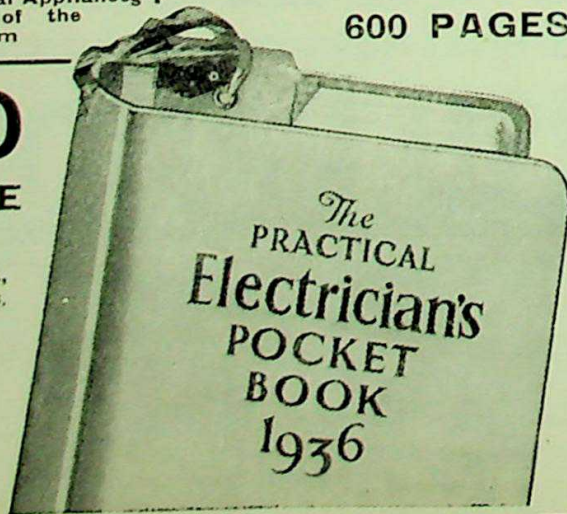
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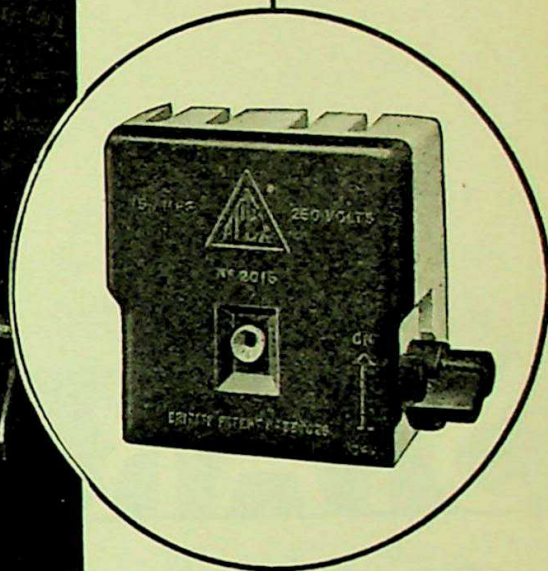
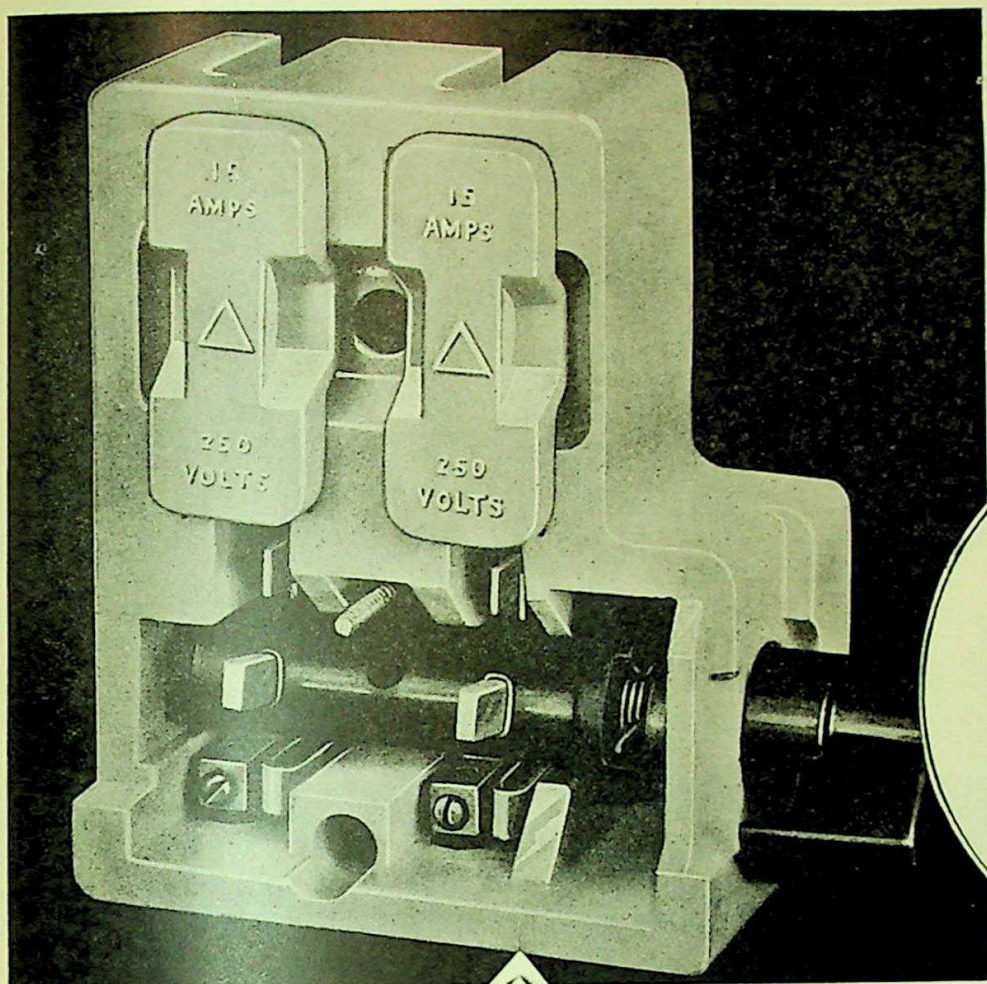
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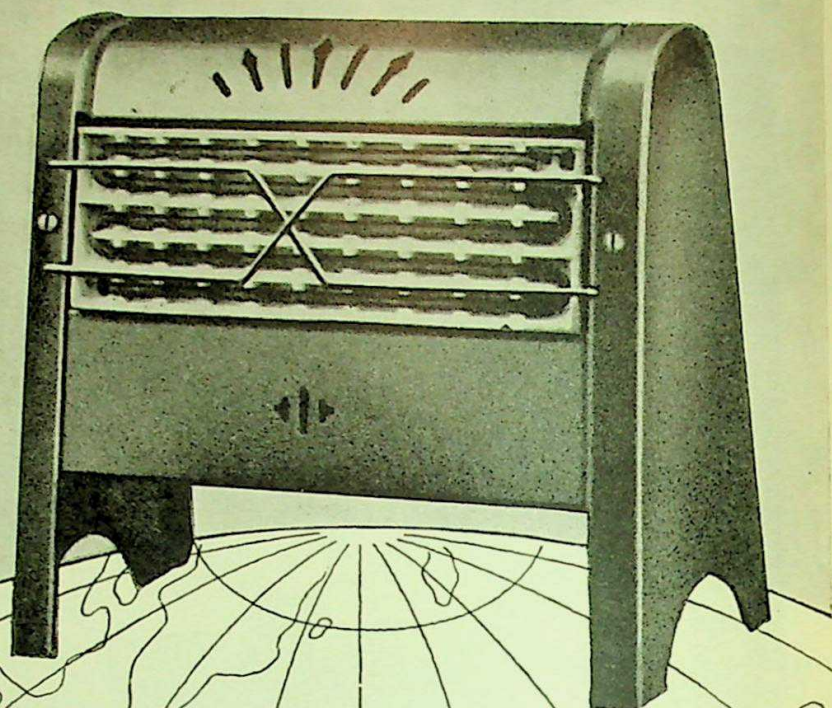
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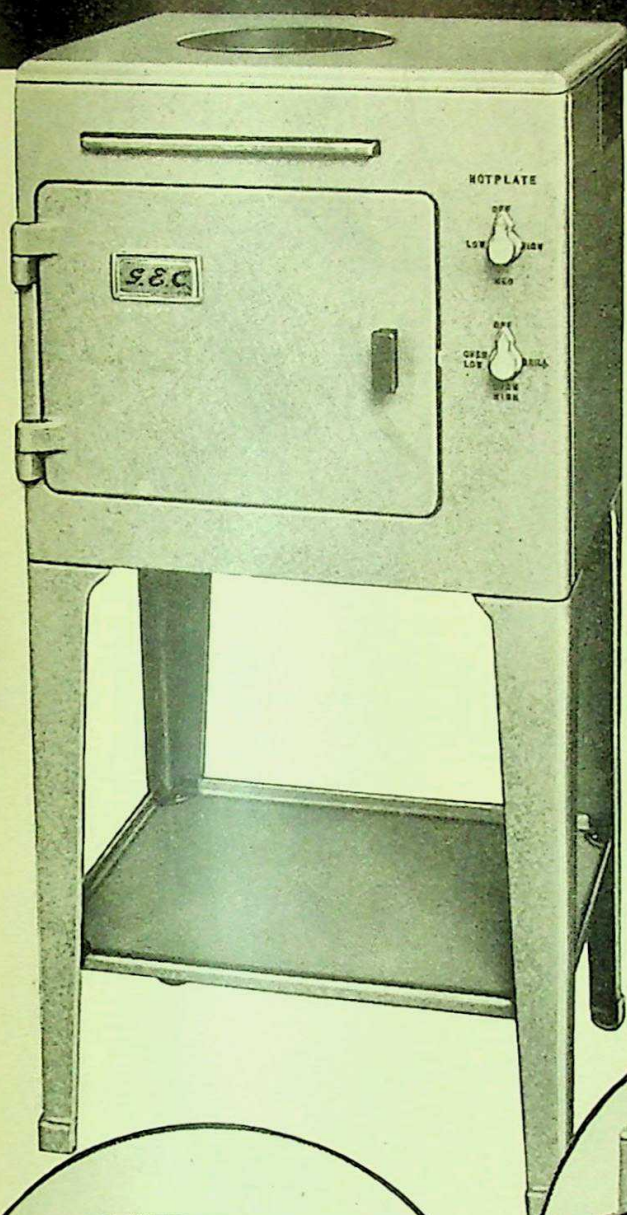
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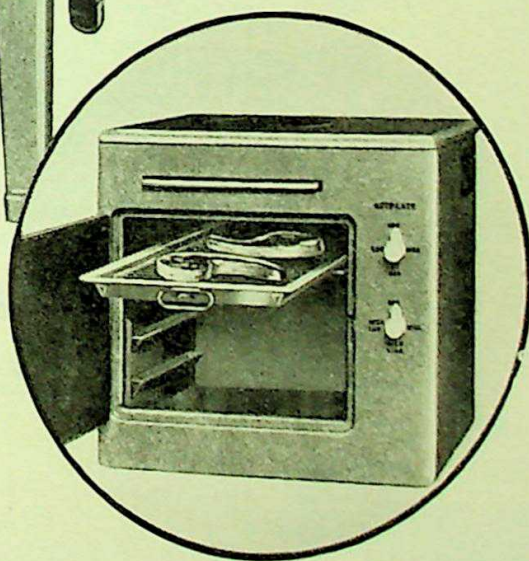
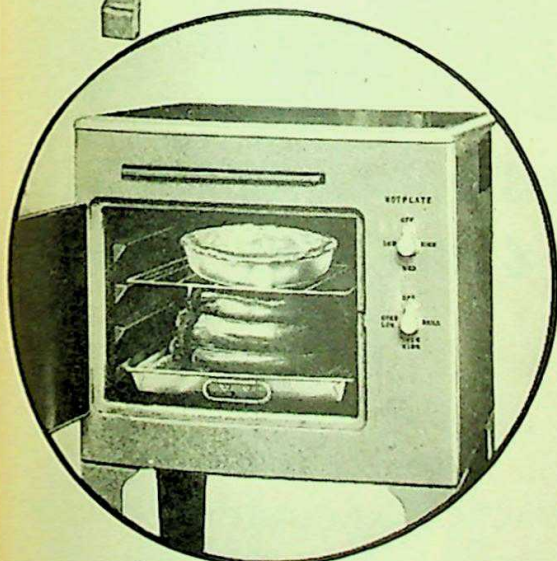
Cat. No. DC 235

List Price

# £6.10s.

Floor Stand and  
Potshelf

# £1

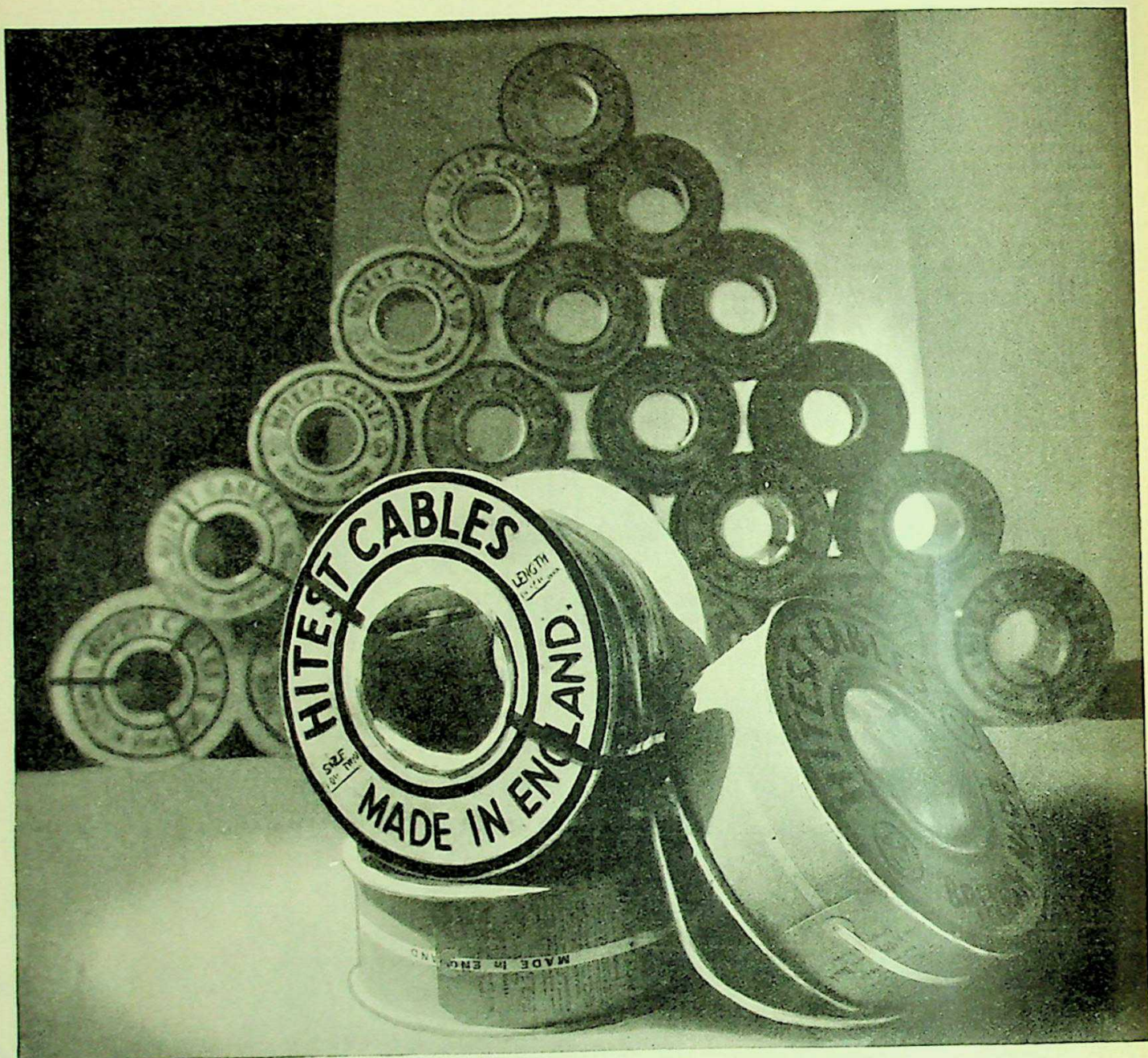


*The youngest member of a healthy family*

## ROOMY BUT COMPACT · *A Complete Cooking Unit*



# HITEST CABLES



**QUALITY AND SATISFACTION GUARANTEED**  
**PRICES COMPETITIVE**

MADE TO COMPLY IN ALL RESPECTS  
WITH BRITISH STANDARDS INSTITUTION  
SPECIFICATION No. 7-1926 AND WITH  
LATEST I.E.E. RULES (10th EDITION)

"HITEST" CABLES ARE MANUFACTURED AT OUR LONDON WORKS

**FALK STADELMANN & CO. LTD 83-93, Farringdon Road, London, E.C.1**

GLASGOW MANCHESTER BIRMINGHAM DUBLIN NEWCASTLE CARDIFF LEEDS LIVERPOOL SWANSEA BRADFORD





Never before has a lighting fitting been produced possessing so many outstanding qualities as the BENFLUX.

Efficient glareless light is reflected on to the work where it is wanted, and at the same time sufficient light passes through the top apertures to illuminate the ceiling and make the surroundings cheerful. The top ventilation keeps the lamp and its flexible from overheating so that they last much longer.

BENFLUX is the ideal unit for small workshops, offices, shops and all locations using lamps from 40 to 150 watts. For larger lamps the BENJAMIN GLASSTEEL DIFFUSER is available.

LIBERAL DISCOUNTS to TRADE

Send for full particulars  
TO-DAY

*The*  
**Benflux**  
REFLECTOR FITTING

THE BENJAMIN ELECTRIC LTD.  
BRANTWOOD WORKS, TARIFF ROAD  
TOTTENHAM, LONDON, N.17

**THE FINISH IS THE START  
OF BIGGER SALES!**



Utility unadorned is no longer sufficient—the latest "FOOCHOW" Finishes are part and parcel of modern selling plans. Heat-resisting finishes in beautiful colours at a fraction of previous cost—processing time alone reduced by as much as 75%—these are just two of the achievements of our ELECTRICAL RESEARCH DEPARTMENT.

**Foochow**  
ORIENTAL LACQUER

*The Speediest of all High-Class Finishes*  
for FIRES, COOKERS, REFRIGERATORS, WATER  
HEATERS, SWITCHGEAR WORK, etc.

Please address enquiries to Service Manager, Dept. 7.

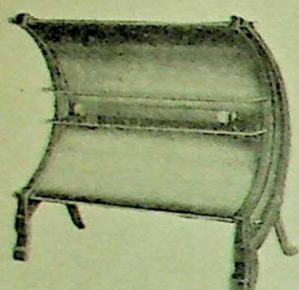
**DONALD MACPHERSON & CO. LTD.**  
MITCHAM, LONDON, and KNOTT MILL, MANCHESTER



*More Sales mean More Profits*

*sell* **PREMIER**

*fine-quality electric appliances this Xmas*



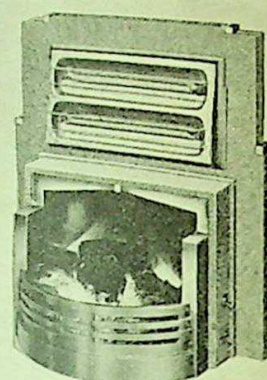
THE "PARAGLOW"



"QUICKSET"  
KETTLE



905 TOASTER



THE "GRESHAM"

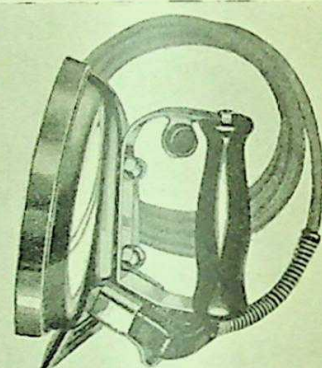


THE "REFLEX"

COFFEE  
PERCOLATOR

The profit you make on 'Premier' Appliances is in direct proportion to the sales. There are no annoying 'leakages' for service and maintenance charges.

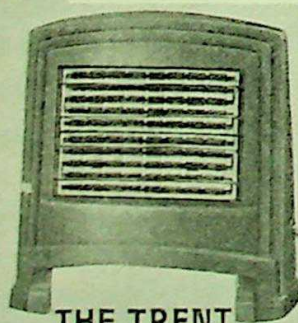
So why not give *yourself* a Christmas present in the shape of bigger and better profit? The 'Premier' range covers every need; and remember, all 'Premier' lines are backed by over 28 years' specialized experience in Electric Heating Appliance design and manufacture.



"LAUNDWELL" AND  
"SMOOTHWELL" IRONS



THE "MAXWELL"



THE TRENT



THE  
"COUNTESS"



THE "PARABEAM"

**PREMIER ELECTRIC HEATERS LIMITED**  
**BIRMINGHAM 9.**

Telephone:  
Birmingham Victoria 2104 (5 lines)

Telegrams:  
Fahrenheit, Birmingham

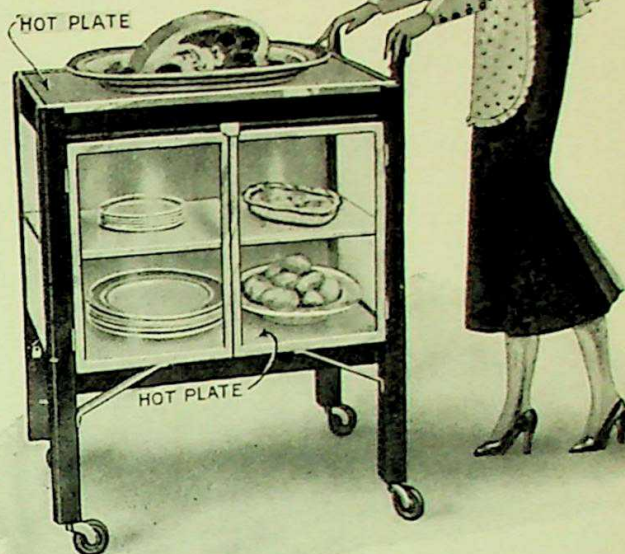
LONDON OFFICE: 203 BUSH HOUSE (CENTRE BLOCK), ALDWYCH, W.C.2. TELEPHONE: TEMPLE BAR 2903



# ELECTRIC SERVICE WAGONS HOT CUPBOARDS and HOT PLATES

Patents 404784, 411675

A high-class piece of furniture for the Dining Room. Ensure your food being kept hot for long periods without loss of quality. With this equipment installed the Cook can no longer complain that "the Dinner is spoilt by keeping." Most Cooks are handicapped by want of a suitable appliance for keeping food hot after cooking.



## BERTRAM THOMAS

*Sole Patentee and Manufacturer*

Worsley Street - - - Hulme  
**MANCHESTER, 15.**

*London Office and Showrooms:*  
28, Victoria Street, Westminster, S.W.1

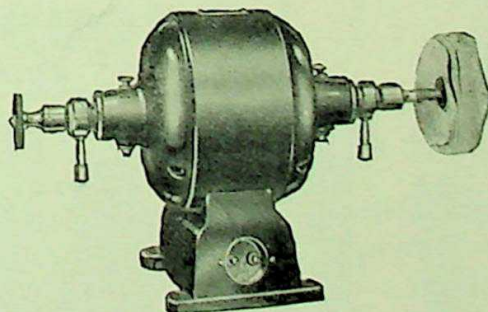
*Service Wagons keep  
the food hot for the  
duration of the meal*

# "MARELLI"

(Regd. TRADE MARK)

IMPROVED MODEL A.C. TWO-SPEED  
FRACTIONAL HORSE POWER  
POLISHING AND GRINDING MOTORS

DELIVERY  
FROM  
STOCK



PRICES  
ON  
APPLICATION

VARIABLE SPEED POLISHING MOTORS  
ARE ALSO STOCKED FOR DIRECT CURRENT

MARELLI & CO. LTD.

Artillery House, Artillery Row,  
Victoria Street,

LONDON, S.W.1.

Telephones: Victoria 3476/7.

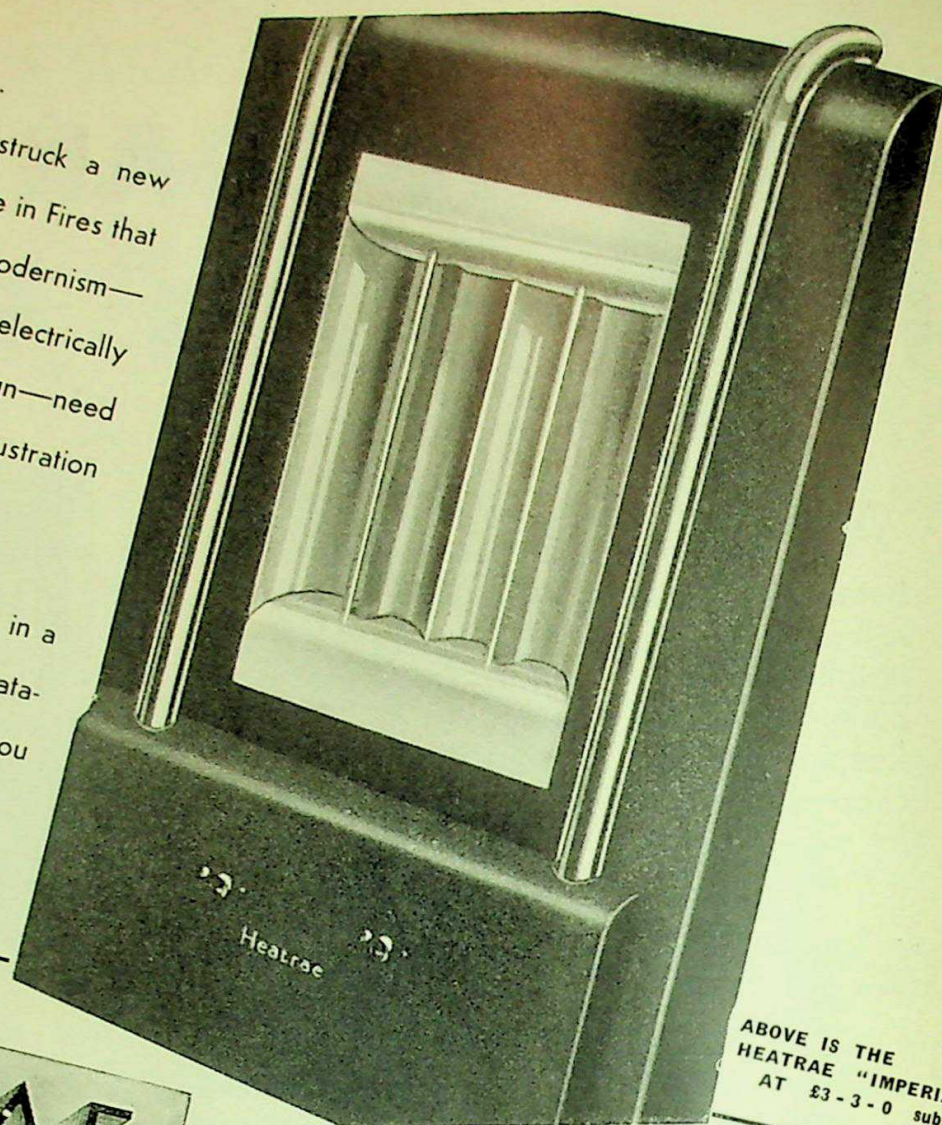
Telegrams & Cables: "MARELLI, LONDON."



# HEATRAE MODERNITY

"Heatrae" have struck a new note—a new vogue in Fires that fit the spirit of modernism—something as efficient electrically as it is tasteful in design—need we say more, our illustration speaks for itself.

The full range is embodied in a new and beautifully printed catalogue. How many will you require?

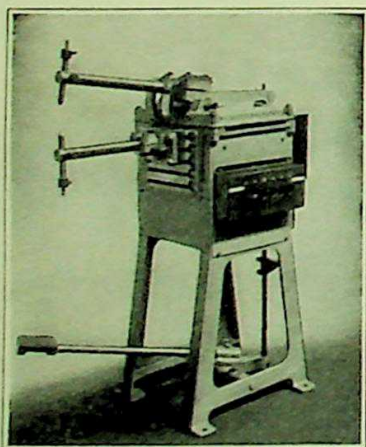


ABOVE IS THE  
HEATRAE "IMPERIAL"  
AT £3-3-0 sub.

**HEATRAE**  
LIMITED  
NORWICH  
TELEPHONE: NORWICH 3491  
TELEGRAMS: HEATRAE, NORWICH

## WE MAKE ELECTRIC WELDING MACHINES SPOT, SEAM AND BUTT WELDERS

30 YEARS' EXPERIENCE.



11 K.V.A. Spot Welder.

The quickest and most economical method for Welding Oil Drums, Bars, Tyres, Wheel Rims, Tubes & Angles.

### The WESTMINSTER ENG. CO. Ltd.

Victoria Road, Willesden Junction, N.W.10  
Dynamos, Motors, Alternators and Transformers  
Rewound and Re-constructed.

"Westminster" Brush Holders.

"Westminster" Photo and Medical Arc Lamps.

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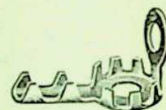
Telephone—  
Willesden 1700-1701

Telegrams—  
"Regency, Phone, London."

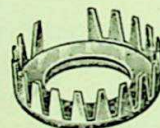
## A SOUND ELECTRICAL TERMINAL.

WITHOUT  
**SOLDER**

SMALL, SUITABLE FOR  
TELEPHONE  
LINES.



USED FOR  
FUSE WIRES,  
CABLES,  
AND  
WIRES  
of all  
Descriptions



EXTRA DEEP EXTRA DEEP

SIZE FROM  $\frac{1}{8}$ " TO  $\frac{1}{4}$ " HOLE.

Send for List and Full Particulars.

**ROSS COURTNEY & Co., Ltd.,**  
ASHBROOK ROAD, LONDON, N.19.



## PRESSURE PLUGS

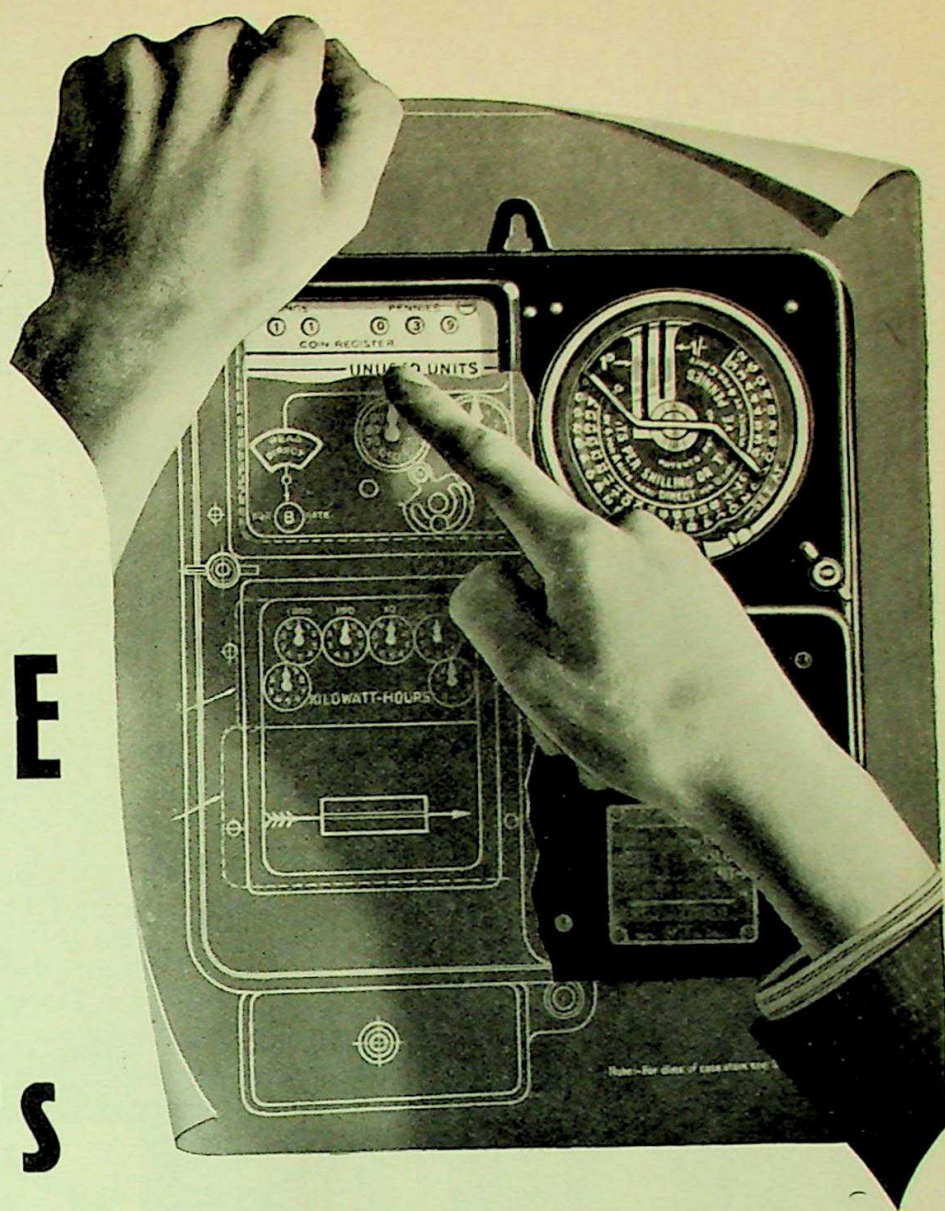
to the specific  
requirements of  
our customers.

Makers of all  
types of repetition  
products from the  
bar in all metals.

**M.C.L. AND REPETITION LTD**  
POOL LANE,  
LANGLEY, BIRMINGHAM.



# It has SEPARATE coin registers



On Smith Meters the revenue has always been recorded in numbers of coins rather than in £. s. d. This method reduces chances of error, assists the collector in his checking, and saves his time.

The same method is applied in this new Du-slot Meter, where it is even more necessary. Both the pennies and shillings are recorded by number, and on separate coin registers.

## VARIABLE TARIFF SMITH DU-SLOT METER

SMITH METERS LTD · ROWAN ROAD · STREATHAM VALE · S.W.16 · POLLARDS 2271



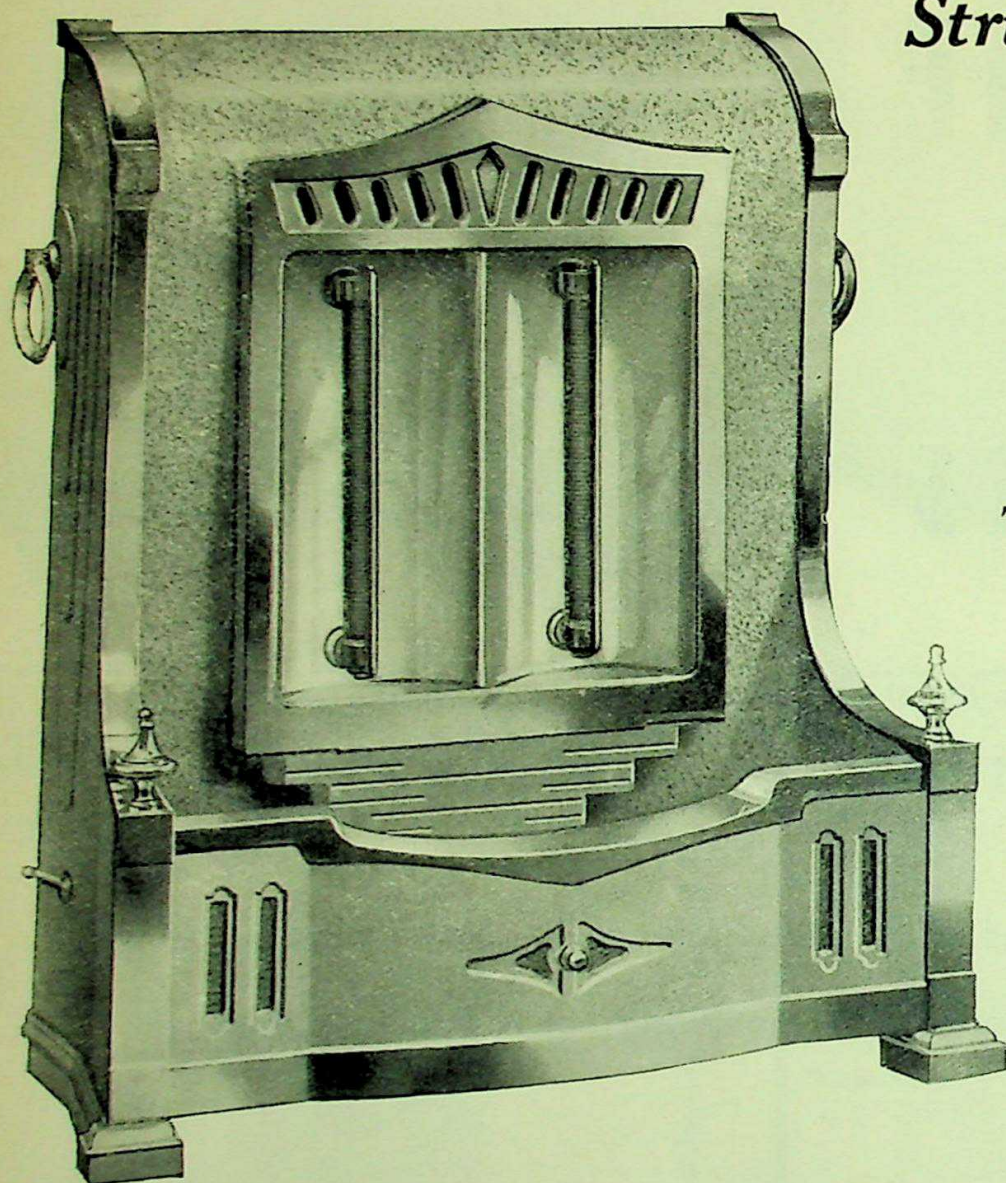


By Appointment  
Ironfounders  
To H.M. The King

# A fine, effective, electric Fire

*Original in design • Powerful in action*

*Strikingly Floodlit*



## THE 'LOUNGE'

This is a Carron Electric Fire that does not pretend to be a coal fire—yet has all the glowing warmth and attraction of one. A special feature is the flood-lighting of the whole front panel of the fire—which is independent of the heating elements. Even if the fire is off, it can be made to look as cheerful and attractive as a coal fire. When the fire is on, the radiant warmth is particularly effective. The 'Lounge' Fire is finished in Carrontine Enamel and Chromium Plate, and sells for £6. 10. 0.

ONE OF THE

# CARRON

## ELECTRIC FIRES



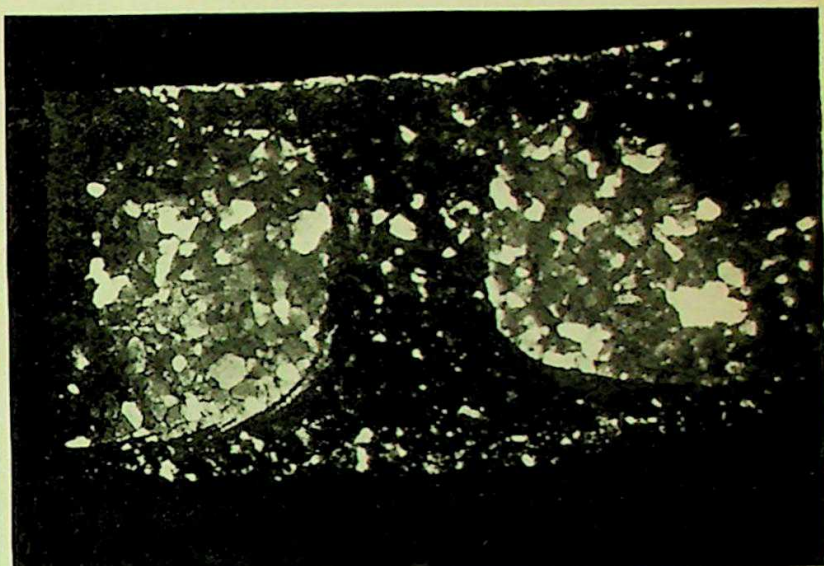
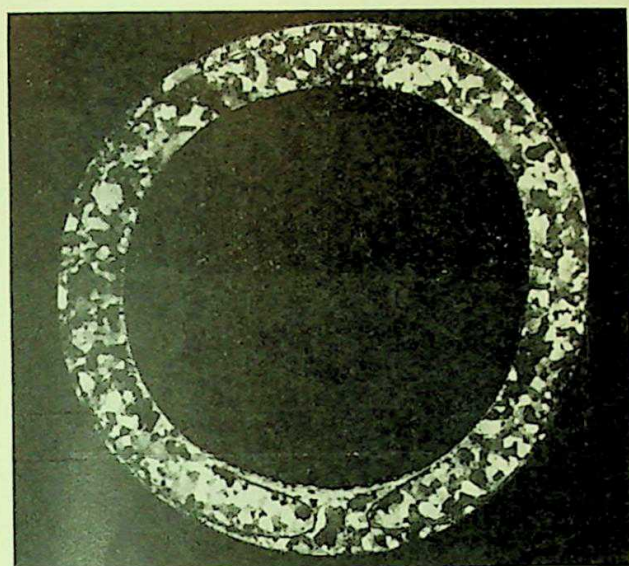
CARRON COMPANY

Works: CARRON, FALKIRK



# LEAD SHEATH

## AS OFTEN PRODUCED



**SEAM**  
THE ORIGIN OF  
**SPLIT LEADS**  
THE CAUSE OF MOST CABLE  
**BREAKDOWNS**

W  
SUPPLY  
WHICH  
SEAMLES  
CONTINUOUS

TELEPHONE :  
SOUTHAMPTON  
2141 (3 lines)

Pirelli-General Lead Extrudi  
**PIRELLI-**  
**CABLE WORKS LTD**  
*Proprietors:- PIRELLI LTD.,*





# Harmony

It is NOT necessary to point out how the new "Heatrae" harmonises completely with the whole theme of modern interior decoration.

Few words are needed—our illustrations speak far more eloquently than we can.

We'll only add that the new catalogue we've just produced is something you certainly CANNOT do without—you'll write for it of course?

## HEATRAE

LIMITED

NORWICH

TELEPHONE

NORWICH 3491

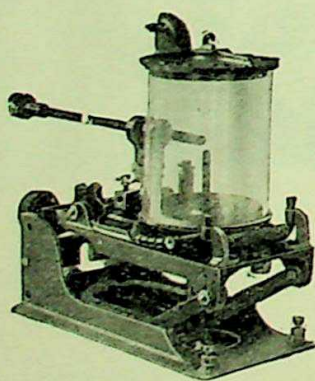
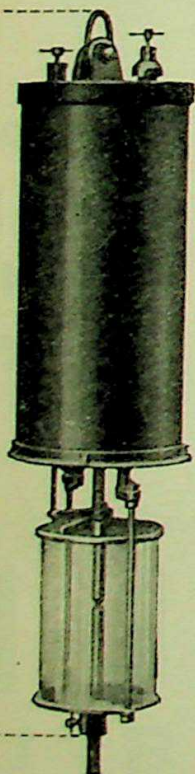
TELEGRAMS

HEATRAE, NORWICH

We are Sole Manufacturers of

## "WESTMINSTER" ARC LAMPS

For Photography & Medical purposes



Manufacturers of  
Westminster Carbon Brush  
Holders.  
Electric Welding Machines.  
"Partridge" Earthing De-  
vices and Pressure Detectors.  
Dynamos, Motors, Alter-  
nators and Transformers  
Rewound and Reconstructed.

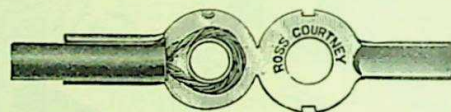
**The WESTMINSTER ENG. CO. LTD.**

Victoria Road, Willesden Junction, N.W.10.

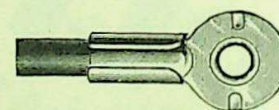
Telephone:  
1700 & 1701 Willesden.

Telegrams:  
"Regency, Phone, London."

## THE "FACILE" TERMINAL.



Showing Wires in Position.



Ready for attachment.

**ADVANTAGES.**—Indestructible. Facility with which it can be fixed to cables. Double strength by having two thicknesses of metal. Certain contact between terminal and wire always assured. All in one piece: no loose parts.

Send for Prices and List of all Kinds of Terminals.

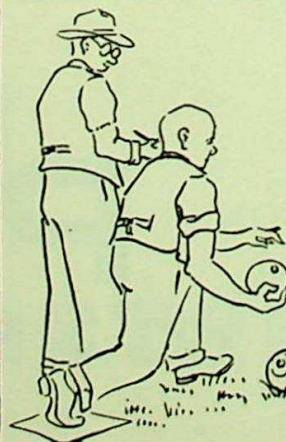
**ROSS COURTNEY & CO., Ltd.**

ASHBROOK ROAD, LONDON, N.19.

## ROLLERS

to the specific requirements  
of our customers.

Makers of all types of  
repetition products from  
the bar in all metals.



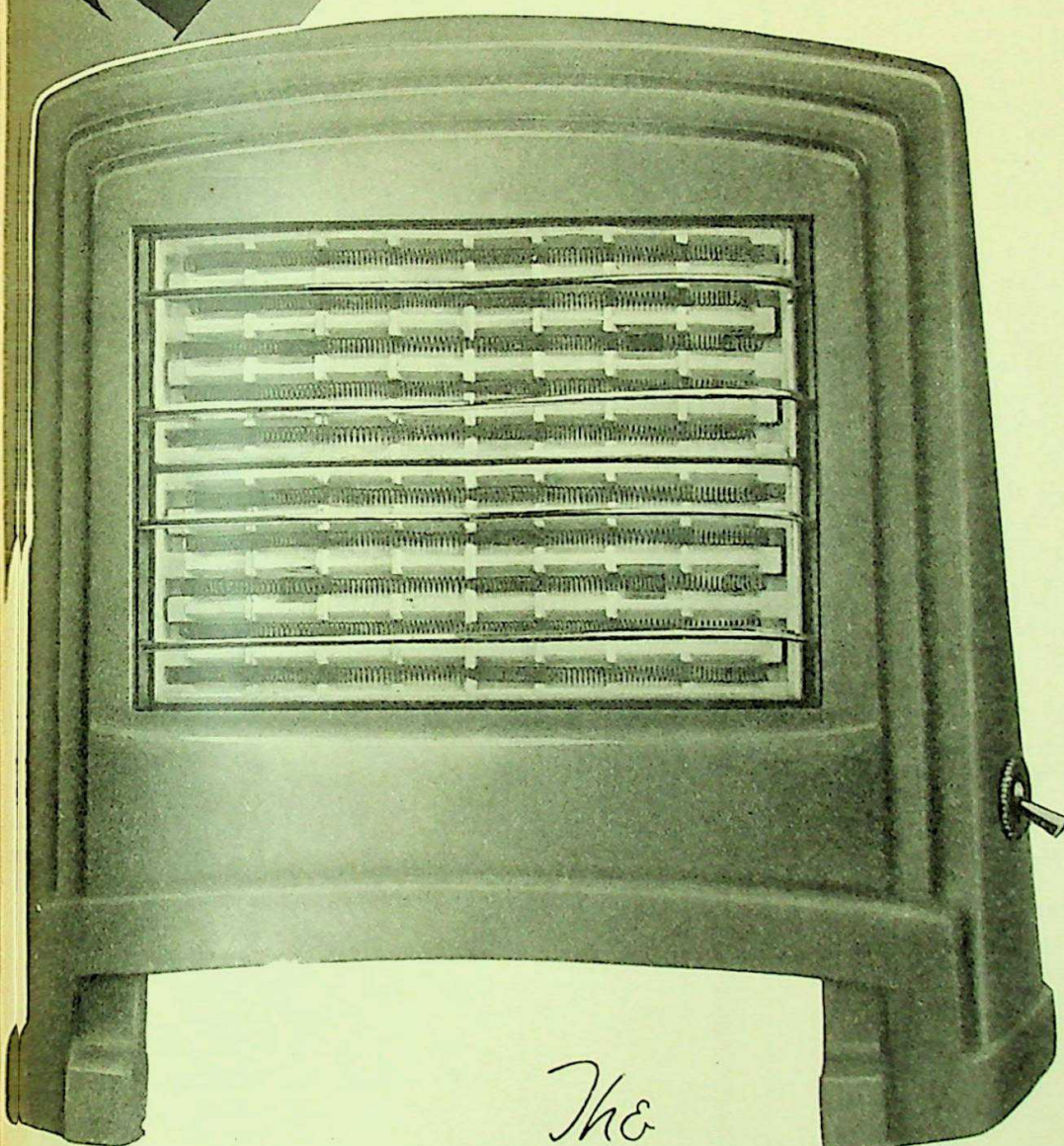
**M.C.L. AND REPETITION LTD**  
POOL LANE,  
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# THE FIRE FOR HIRE

AS WELL AS FOR RECORD SALES

## "PREMIER" FINE-QUALITY ENSURES LOWER MAINTENANCE COSTS



*The*  
**TRENT**

The "Premier" TRENT is an ideal fire for hire. It combines all the essentials for this purpose—low initial outlay and no maintenance costs.

The vitreous enamel finish is both attractive and hard-wearing, and finally, the general construction is robust and designed to withstand hard usage. The famous "Premier" Double-Radius fire bar is fitted—ensuring maximum and even heat distribution to all corners of the room.

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| 2KW | Price | 26/6 | subject |
| 1KW | "     | 17/6 | "       |

2 UNITS  
**26/6**

**PREMIER ELECTRIC HEATERS LIMITED BIRMINGHAM · 9**

Telephone: Birmingham Victoria 2104 (5 lines).  
Telegrams: Fahrenheit, Birmingham.

London Office: 203 Bush House (Centre Block), Aldwych, W.C.2  
Telephone: Temple Bar 2903



**NOTICES.—TENDERS.**

s display section are inserted at 14s. per inch (minimum one inch).

**COUNTY BOROUGH OF BELFAST.****Electricity Department.****STORES.**

THE Electricity Committee invite Tenders for the supply of the undermentioned materials for Twelve Months commencing 1st April, 1936:—

- |                                                                                |                                                                                      |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Form No.                                                                       | Form No.                                                                             |
| 1. Engine Room Stores                                                          | 21. Automatic Time Switches                                                          |
| 2. Turbine Oil                                                                 | 22. L.T. Fuse Units and House Service Cut-outs                                       |
| 3. Transformer Oil                                                             | 23. Static Transformers                                                              |
| 4. Oilskin Coats, Tarpaulins, Rubber Jointing, etc.                            | 24. V.B. & P.I. Cables and Cast Iron Joint Boxes                                     |
| 5. Bricks, Firebricks, Road Metal, Sand, etc.                                  | 25. Creosoted Red Fir Wood Poles, Stay Blocks and Creosoted White Spruce             |
| 6. Brushes, Ropes and Twine                                                    | 26. V.I.R. Electric Cables, Wires and Flexibles                                      |
| 7. Steam and Gas Tubing and Fittings                                           | 27. Armoured Compound Filled 6,000 Volt Switch-gear                                  |
| 8. Electrical Accessories                                                      | 28. Transformer Kiosks with H.T. and L.T. Switch-gear                                |
| 9. Lamps                                                                       | 29. Electric Kettles                                                                 |
| 10. Carbon Brushes                                                             | 30. Overhead Line Materials                                                          |
| 11. Refined Bitumen                                                            | 31. Stewpans                                                                         |
| 12. Bitite Strip, Prepared Tape, Rubber Tape for Joints and Joint Box Compound | 32. Steel Poles, Finials, W. Iron Brackets and Street Lighting Fittings              |
| 13. Tools                                                                      | 33. Bare Hard Drawn High Conductivity Copper Conductors and P.B.J. Insulated Cables. |
| 14. Liquid Chlorine                                                            |                                                                                      |
| 15. Glazed Stoneware Troughing and G.S. Conduits                               |                                                                                      |
| 16. Feeder and Section Pillars                                                 |                                                                                      |
| 17. Electric Wash Boilers                                                      |                                                                                      |
| 18. Ferrules and Solder                                                        |                                                                                      |
| 19. Meters and Instrument Transformers                                         |                                                                                      |
| 20. Electricity Maximum Demand Indicators                                      |                                                                                      |

Forms of Tender and further particulars may be obtained from the City Electrical Engineer and General Manager, East Bridge Street, Belfast.

The whole or any part of a Tender sent in may be accepted.

Sealed Tenders, on official forms only, enclosed in the envelope supplied with the Tender Form, endorsed with the name and address of the firm tendering and marked "Tender for Stores, Electricity Department," to be lodged in, or posted so as to arrive at, my office not later than Thursday, 16th January, 1936.

The lowest or any tender will not necessarily be accepted.

An official receipt must be obtained for every Tender delivered by hand. Tenders sent by post should be registered.

JOHN ARCHER,

Town Clerk.

City Hall, Belfast.  
19th December, 1935.

623

**CITY OF MANCHESTER.**

THE Electricity Committee of the Manchester Corporation invites Tenders for the Supply and Delivery during a period of twelve months of its requirements of:—

**DOMESTIC ELECTRIC COOKERS**  
(Specification No. 524).

Specification and Form of Tender may be had on application to Mr. H. C. Lamb, Chief Engineer and Manager, Electricity Department, Town Hall, Manchester, on payment of a fee of one guinea, which amount will be refunded on receipt of a bona fide tender.

Tenders duly endorsed and addressed to the Chairman of the Electricity Committee must be delivered at the Town Hall not later than 10 o'clock a.m. on Tuesday, the 21st January, 1936.

The firm entrusted with the work will be required to enter into a contract to be prepared by the undersigned.

The Corporation does not bind itself to accept the lowest or any tender.

F. E. Warbreck Howell,

Town Clerk.

Town Hall,  
Manchester.  
21st December, 1935.

622

**TELEGRAPHIC MATERIAL AND EQUIPMENT.**

TENDERS are invited by the Iranian Ministry of Posts, Telegraphs and Telephones, Teheran, for the supply of 8,680 steel telegraph poles, and accessory equipment. Specification and further particulars can be obtained on application to the Commercial Attache, to the Imperial Iranian Legation, Ling House, 10/13, South Street, London, E.C.2

594

**OFFICIAL NOTICES.—TENDERS.—Continued.****COUNTY BOROUGH OF SOUTHPORT.****Electrical Installation at the Transport Depot, Canning Road, Southport.**

THE Transport Committee invite Tenders for the supply and fixing of the wiring and fittings for the Electric Lighting Installation of the Transport Depot, Canning Road, Southport.

Plans and Specifications can be obtained from the undersigned on payment of £1 ls. (cheques to be made payable to "Southport Corporation"), which sum will be returned on receipt of a bona fide tender.

Sealed tenders endorsed "Tender for Electrical Installation," must be delivered to the Town Clerk, Town Hall, Southport, in the envelope provided, not later than Saturday, the 28th day of December, 1935.

The lowest or any tender will not necessarily be accepted.

THOS. J. KENDREW,

Engineer and Manager.

Transport Department,  
1, Eastbank Street,  
Southport.  
December 10th, 1935.

561

**BOROUGH OF DARTFORD.****Supply of Cable.**

TENDERS are invited for the supply of 900 yards of 0.04 sq. in. 3-core 11-kV Cable, together with joint boxes and jointing on the site, full particulars of which can be obtained from the Borough Electrical Engineer at the Electricity Works, Dartford, together with the necessary form of tender. Tenders in plain sealed envelopes endorsed "Tender for Cable," but bearing no other mark or indication of the sender, must be delivered to me, the undersigned, not later than 12 noon on Saturday, the 11th January, 1936.

The Corporation do not bind themselves to accept the lowest or any tender.

J. JAMES HURTLEY,

Town Clerk.

Town Clerk's Office,  
Dartford.  
17th December, 1935.

592

**COUNTY BOROUGH OF SOUTHEND-ON-SEA.****Electricity Department.**

THE Corporation invite tenders for the supply and delivery of:—

**GASEOUS DISCHARGE LAMPS, LANTERNS AND BRACKETS.**

Specification and form of tender can be obtained upon application to the undersigned.

Tenders endorsed "Street Lanterns" must be deposited not later than January 8th, 1936, with the Town Clerk, Municipal Buildings, Clarence Road, Southend-on-Sea.

ARTHUR C. JOHNSON,

Borough Electrical Engineer and Manager.

Electricity Works,  
Southend-on-Sea.

614

**CITY OF SALFORD.**

TENDERS are invited by first post on Wednesday, 15th January, 1936, for the supply of:—

1 12,500 kVA, 33/6.6 kV, 3-phase Outdoor-type Transformer.

Specification and Form of Tender from City Electrical Engineer, Electricity Department, Frederick Road, Salford, 6.

H. H. TOMSON, Town Clerk.

617

**CITY OF SALFORD.**

TENDERS are invited by 7th January, 1936, for the supply and delivery of Two 8cwt. Electrically Propelled Vans.

Particulars from City Electrical Engineer, Electricity Department, Frederick Road, Salford, 6, Lancs.

H. H. TOMSON, Town Clerk.

616



RETURN TO  
DESIGN DIV.



